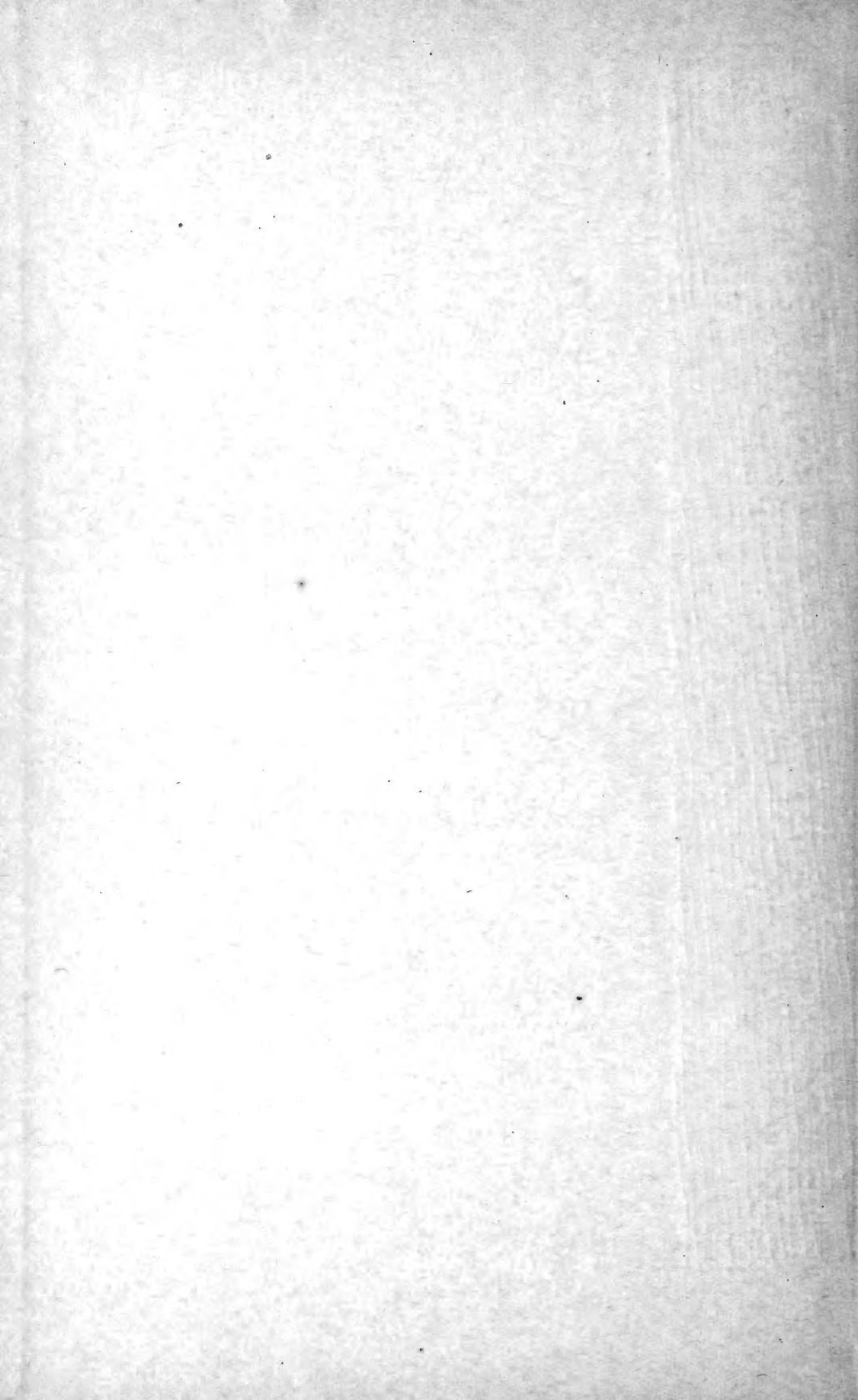
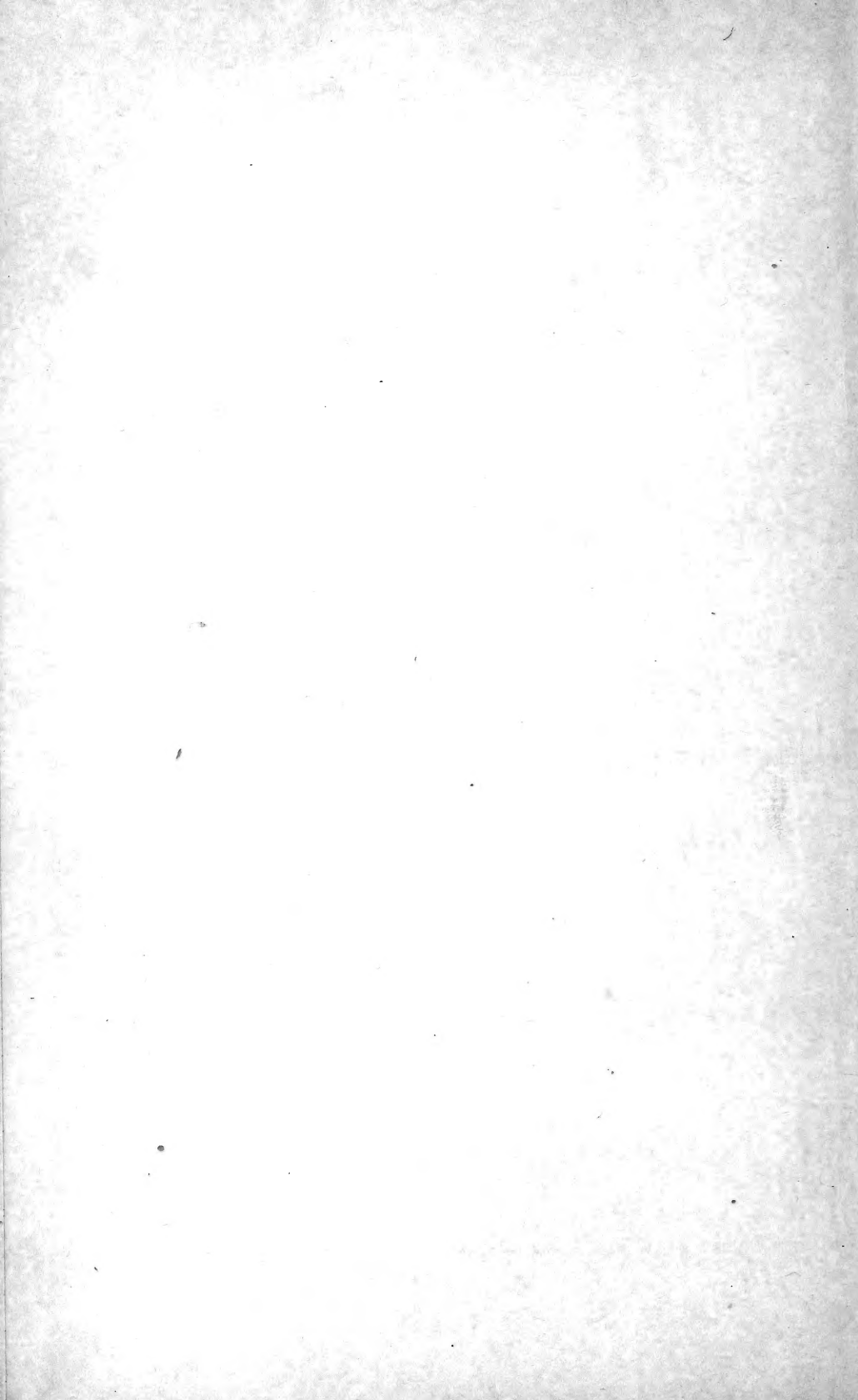


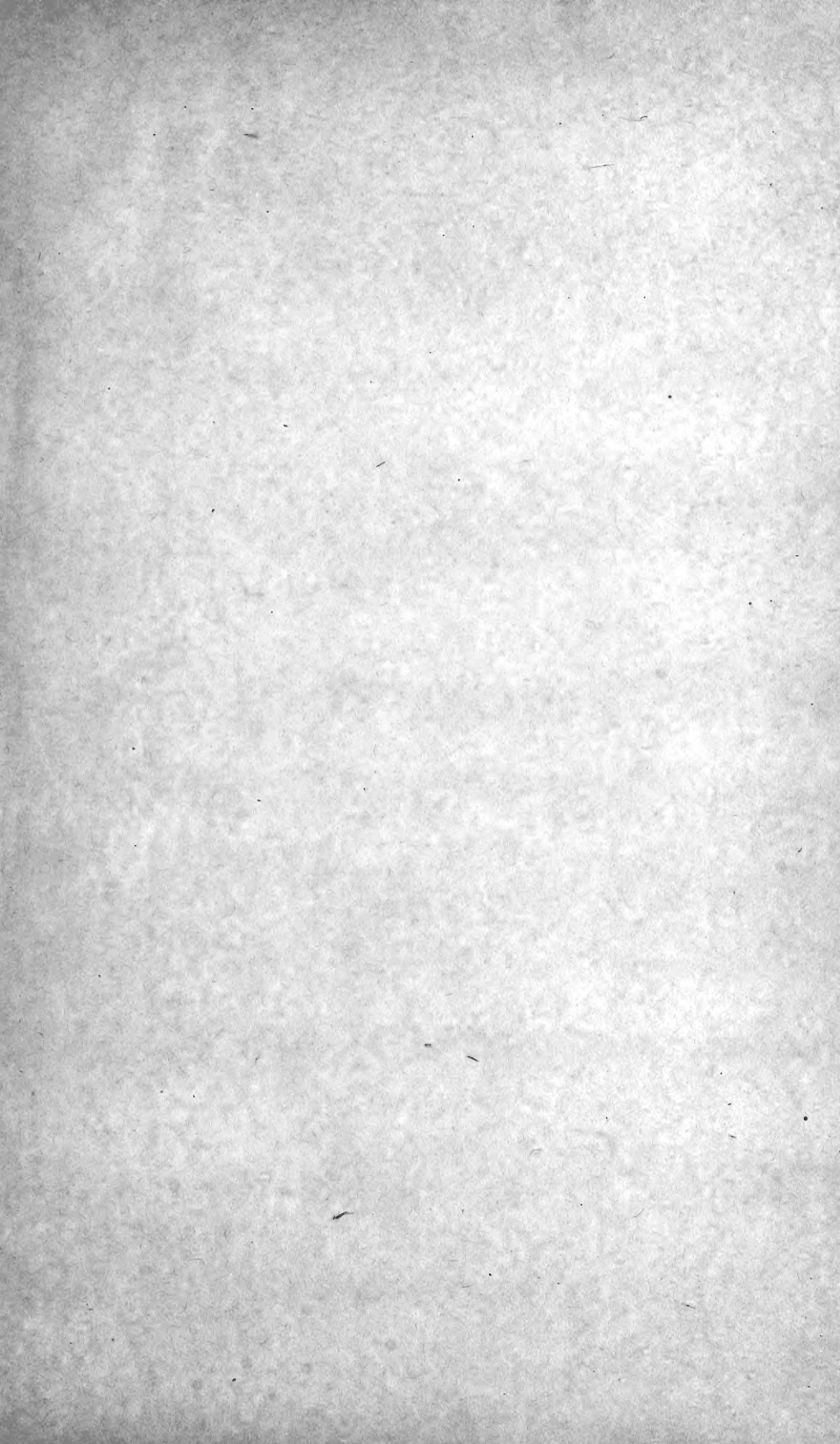
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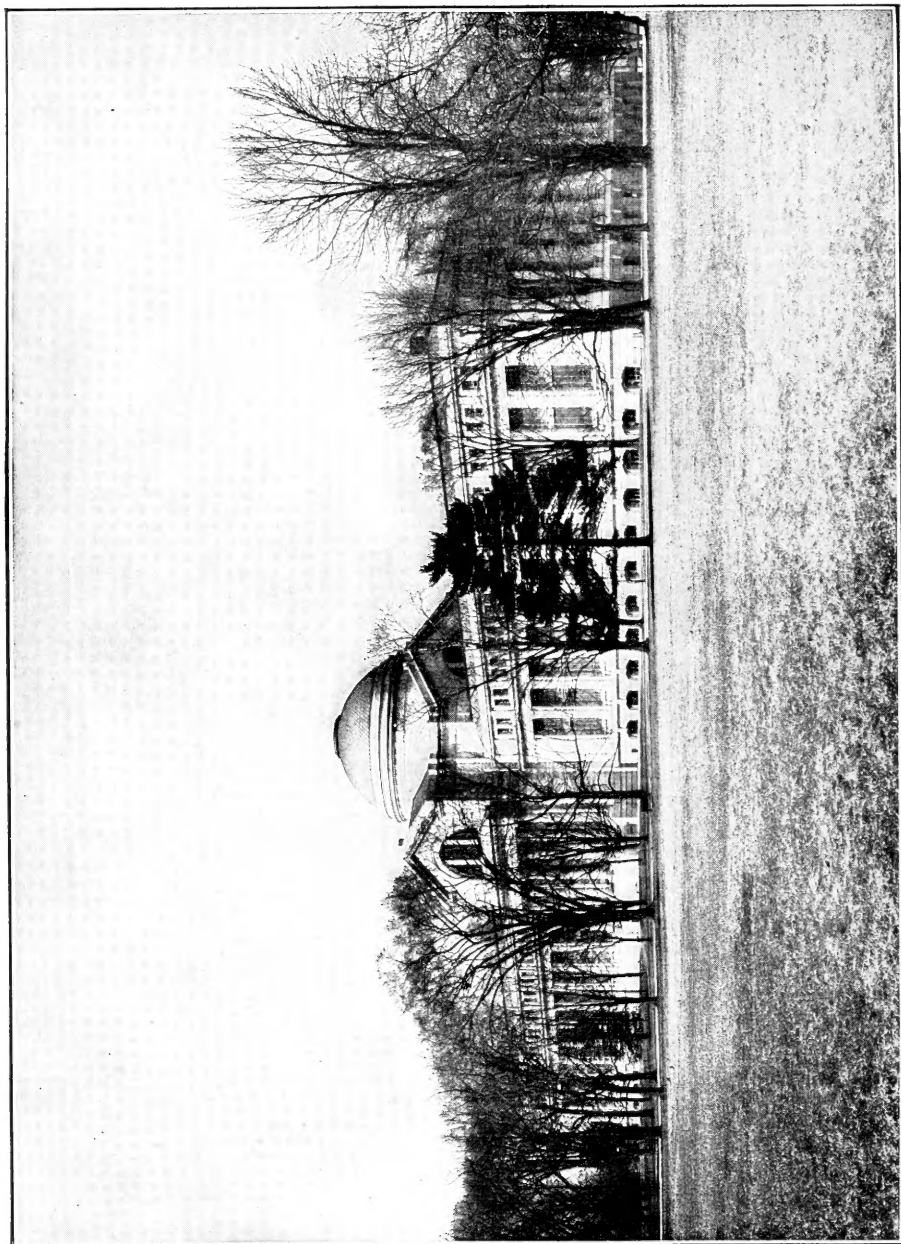












SOUTH FRONT OF NATURAL HISTORY BUILDING, UNITED STATES NATIONAL MUSEUM.

B. A. Bean.

SMITHSONIAN INSTITUTION
UNITED STATES NATIONAL MUSEUM

REPORT ON THE PROGRESS AND CON-
DITION OF THE UNITED STATES
NATIONAL MUSEUM FOR THE
YEAR ENDING JUNE 30, 1920



WASHINGTON
GOVERNMENT PRINTING OFFICE
1920

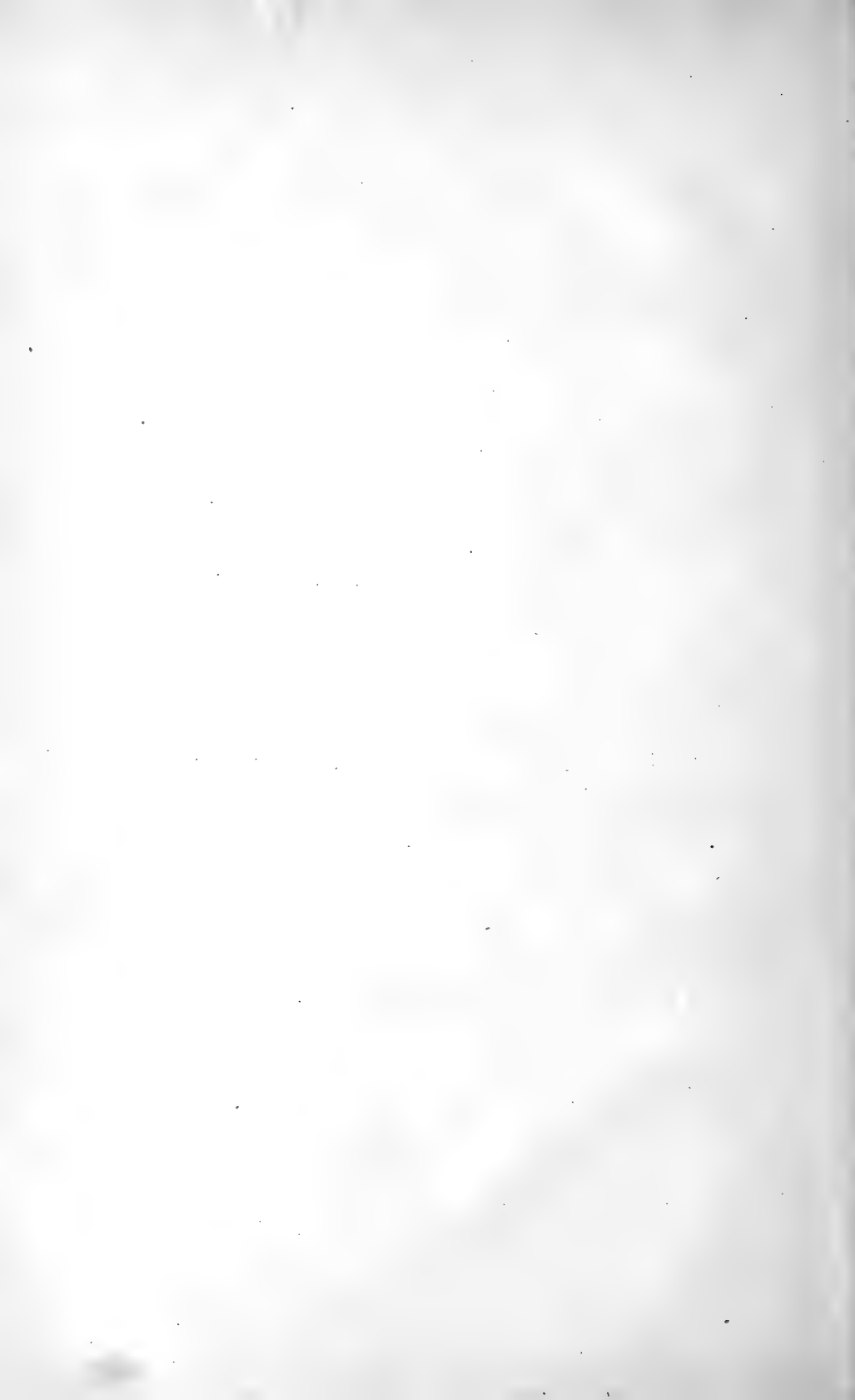
UNITED STATES NATIONAL MUSEUM,
UNDER DIRECTION OF THE SMITHSONIAN INSTITUTION,
Washington, D. C., August 27, 1920.

SIR: I have the honor to submit herewith a report upon the present condition of the United States National Museum and upon the work accomplished in its various departments during the fiscal year ending June 30, 1920.

Very respectfully,

WILLIAM DEC. RAVENEL,
*Administrative Assistant to the Secretary,
In charge of the United States National Museum.*

DR. CHARLES D. WALCOTT,
Secretary, Smithsonian Institution.

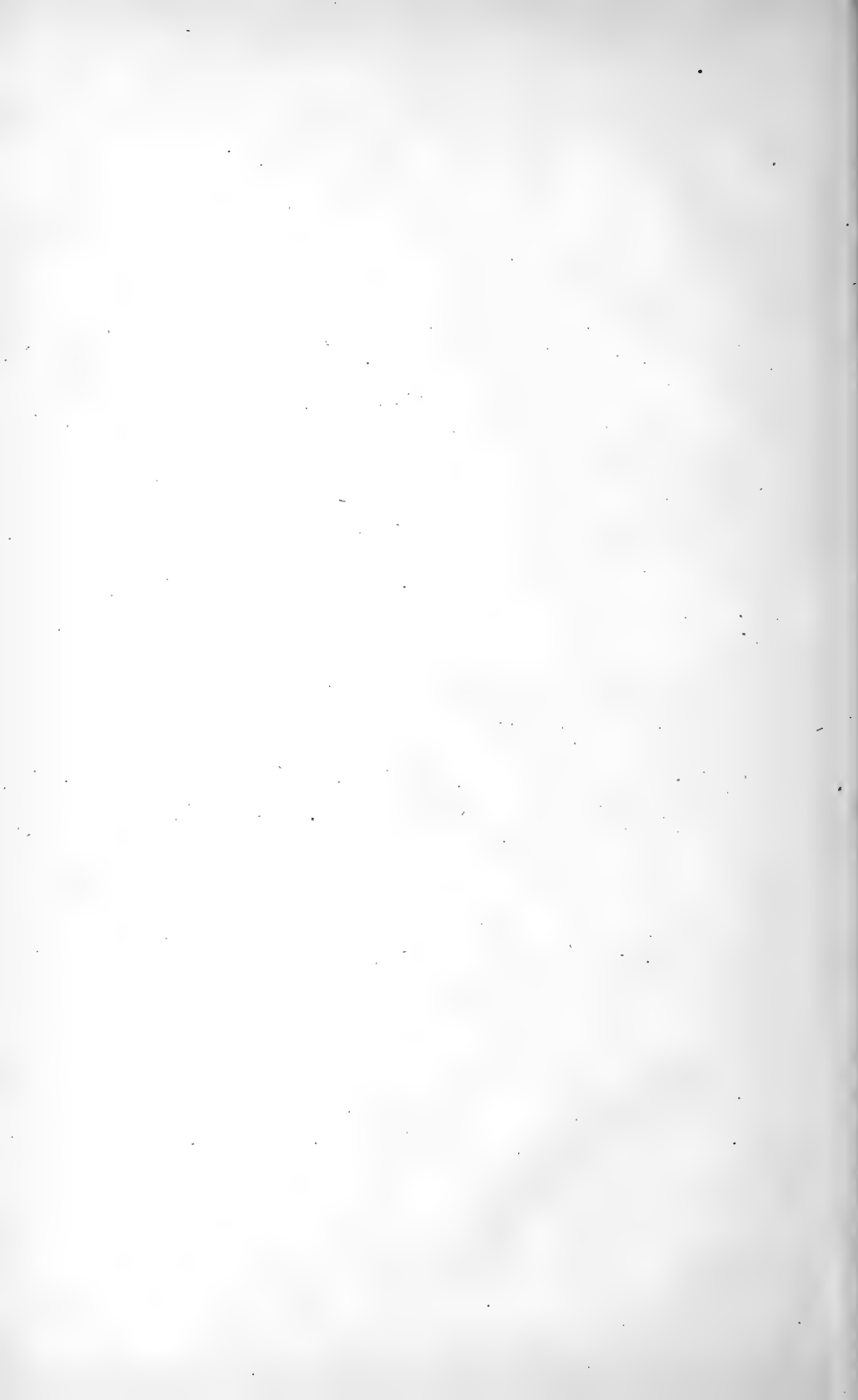


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STAFF OF THE UNITED STATES NATIONAL MUSEUM.

[June 30, 1920.]

CHARLES D. WALCOTT, Secretary of the Smithsonian Institution, Keeper *ex officio*.

WILLIAM DE C. RAVENEL, Administrative Assistant to the Secretary, in charge of the United States National Museum.

SCIENTIFIC STAFF.

DEPARTMENT OF ANTHROPOLOGY:

William H. Holmes, Head Curator.

Division of Ethnology: Walter Hough, Curator; J. W. Fewkes, Collaborator; Arthur P. Rice, Collaborator.

Division of American Archeology: Neil M. Judd, Curator; R. G. Paine, Aid.

Division of Old World Archeology: I. M. Casanowicz, Assistant Curator.

Division of Physical Anthropology: Aleš Hrdlička, Curator.

Division of Graphic Arts: Paul Brockett, Custodian; Ruel P. Tolman, Aid.

Section of Photography: A. J. Olmsted, Custodian.

Division of History: T. T. Belote, Curator; Joseph B. Leavy, Philatelist.

Associates in Historic Archeology: Paul Haupt, Cyrus Adler.

Collaborator in Archeology: Philip A. Means.

DEPARTMENT OF BIOLOGY:

Leonhard Stejneger, Head Curator; James E. Benedict, Assistant Curator.

Division of Mammals: Gerrit S. Miller, jr., Curator.

Division of Birds: Robert Ridgway, Curator; Charles W. Richmond, Associate Curator; J. H. Riley, Aid; Edward J. Brown, Collaborator.

Section of Birds' Eggs: Bradshaw H. Swales, Custodian.

Division of Reptiles and Batrachians: Leonhard Stejneger, Curator; Doris M. Cochran, Aid.

Division of Fishes: Barton A. Bean, Assistant Curator.

Division of Insects: L. O. Howard, Honorary Curator; J. M. Aldrich, Associate Curator; William Schaus, Honorary Assistant Curator; B. Preston Clark, Collaborator.

Section of Hymenoptera: S. A. Rohwer, Custodian; W. M. Mann, Assistant Custodian.

Section of Myriapoda: O. F. Cook, Custodian.

Section of Diptera: J. M. Aldrich, in charge; Charles T. Greene, Assistant Custodian.

Section of Muscoid Diptera: C. H. T. Townsend, Custodian.

Section of Coleoptera: E. A. Schwarz, Custodian.

Section of Lepidoptera: Harrison G. Dyar, Custodian.

Section of Orthoptera: A. N. Caudell, Custodian.

Section of Hemiptera: Edmund H. Gibson, Custodian.

Section of Forest Tree Beetles: A. D. Hopkins, Custodian.

Division of Marine Invertebrates: Paul Bartsch, Curator; Waldo L. Schmitt, Associate Curator; William B. Marshall, Assistant Curator; C. R. Shoemaker, Aid; Pearl L. Boone, Aid; William H. Dall, Honorary Curator of Mollusks; H. K. Harring, Custodian of the Rotatoria; Mrs. Harriet Richardson Searle, Collaborator; Mary Breen, Collaborator.

DEPARTMENT OF BIOLOGY—Continued.

Division of Marine Invertebrates—Continued.

Section of Helminthological Collections: C. W. Stiles, Custodian; B. H. Ransom, Assistant Custodian.

Division of Echinoderms: Austin H. Clark, Curator.

Division of Plants (National Herbarium): Frederick V. Coville, Honorary Curator; W. R. Maxon, Associate Curator; J. N. Rose, Associate Curator; P. C. Standley, Assistant Curator; Emery C. Leonard, Aid; Ellsworth P. Killip, Aid.

Section of Grasses: Albert S. Hitchcock, Custodian.

Section of Cryptogamic Collections: O. F. Cook, Custodian.

Section of Higher Algae: W. T. Swingle, Custodian.

Section of Lower Fungi: D. G. Fairchild, Custodian.

Section of Diatoms: Albert Mann, Custodian.

Associates in Zoology: C. Hart Merriam, W. L. Abbott, Mary J. Rathbun.

Associate in Botany: John Donnell Smith.

DEPARTMENT OF GEOLOGY:

George P. Merrill, Head Curator.

Division of Physical and Chemical Geology (Systematic and Applied):

George P. Merrill, Curator; E. V. Shannon, Assistant Curator.

Division of Mineralogy and Petrology: F. W. Clarke, Honorary Curator; W. F. Foshag, Assistant Curator; Frank L. Hess, Custodian of Rare Metals and Rare Earths.

Division of Paleontology: R. S. Bassler, Curator; Charles E. Resser, Assistant Curator.

Section of Invertebrate Paleontology: T. W. Stanton, Custodian of Mesozoic Collection; William H. Dall, Associate Curator of Cenozoic Collection; T. Wayland Vaughan, Custodian of Madreporarian Corals.

Section of Vertebrate Paleontology: Charles W. Gilmore, Associate Curator; James W. Gidley, Assistant Curator of Fossil Mammals.

Section of Paleobotany: David White, Associate Curator; F. H. Knowlton, Custodian of Mesozoic Plants; Lucile Simpson, Aid.

Associates in Paleontology: Frank Springer, E. O. Ulrich.

Associate in Petrology: Joseph P. Iddings.

DEPARTMENT OF ARTS AND INDUSTRIES:

William deC. Ravenel, Director.

Division of Textiles: Frederick L. Lewton, Curator; Mrs. E. W. Rosson, Aid.

Section of Wood Technology: William M. N. Watkins, Assistant Curator.

Division of Medicine: Charles Whitebread, Assistant Curator.

Division of Mineral Technology: Chester G. Gilbert, Associate Curator.

Division of Mechanical Technology: C. W. Mitman, Curator; Barbara E. Bartlett, Aid; George W. Spier, Custodian of Watches.

NATIONAL GALLERY OF ART:

William H. Holmes, Curator.

ADMINISTRATIVE STAFF.

Chief of Correspondence and Documents, H. S. Bryant.

Disbursing Agent, W. I. Adams.

Superintendent of Buildings and Labor, J. S. Goldsmith.

Editor, Marcus Benjamin.

Assistant Librarian, N. P. Scudder.

Photographer, A. J. Olmsted.

Property and Shipping Clerk, W. A. Knowles.

Engineer, C. R. Denmark.

REPORT ON THE PROGRESS AND CONDITION OF THE UNITED STATES NATIONAL MUSEUM FOR THE YEAR ENDING JUNE 30, 1920.

By WILLIAM DE C. RAVENEL,
*Administrative Assistant to the Secretary,
In charge of the United States National Museum.*

INCEPTION AND HISTORY.

The Congress of the United States in the act of August 10, 1846, founding the Smithsonian Institution recognized that an opportunity was afforded, in carrying out the large-minded design of Smithson, to provide for the custody of the museum of the Nation. To this new establishment was therefore intrusted the care of the national collections, a course that time has fully justified.

In the beginning the cost of maintaining the museum side of the Institution's work was wholly paid from the Smithsonian income; then for a time the Government bore a share, and during the past 40 years Congress has voted the entire funds for the expenses of the Museum, thus furthering one of the primary means "for the increase and diffusion of knowledge among men" without encroaching upon the resources of the Institution.

The museum idea was inherent in the establishment of the Smithsonian Institution, which in its turn was based upon a 10 years' discussion in Congress and the advice of the most distinguished scientific men, educators, and intellectual leaders of the Nation of 75 years ago. It is interesting to note how broad and comprehensive were the views which actuated our lawmakers in determining the scope of the Museum, a fact especially remarkable when it is recalled that at that date no museum of considerable size existed in the United States, and the museums of England and of the Continent of Europe were still to a large extent without a developed plan, although containing many rich collections.

The Congress which passed the act of foundation enumerated as within the scope of the Museum "all objects of art and of foreign and curious research and all objects of natural history, plants, and geological and mineralogical specimens belonging to the United States," thus stamping the Museum at the very outset as one of the widest

range and at the same time as the Museum of the United States. It was also appreciated that additions would be necessary to the collections then in existence, and provision was made for their increase by the exchange of duplicate specimens, by donations, and by other means.

If the wisdom of Congress in so fully providing for a museum in the Smithsonian law challenges attention, the interpretation put upon this law by the Board of Regents within less than six months from the passage of the act can not but command admiration. In the early part of September, 1846, the Regents took steps toward formulating a plan of operations. The report of the committee appointed for this purpose, submitted in December and January following, shows a thorough consideration of the subject in both the spirit and letter of the law. It would seem not out of place to cite here the first pronouncement of the board with reference to the character of the Museum:

"In obedience to the requirements of the charter,¹ which leaves little discretion in regard to the extent of accommodations to be provided, your committee recommend that there be included in the building a museum of liberal size, fitted up to receive the collections destined for the Institution. * * *

"As important as the cabinets of natural history by the charter required to be included in the Museum, your committee regard its ethnological portion, including all collections that may supply items in the physical history of our species, and illustrate the manners, customs, religions, and progressive advance of the various nations of the world; as, for example, collections of skulls, skeletons, portraits, dresses, implements, weapons, idols, antiquities, of the various races of man. * * * In this connexion your committee recommend the passage of resolutions asking the cooperation of certain public functionaries and of the public generally in furtherance of the above objects.

"Your committee are further of opinion that in the Museum, if the funds of the Institution permit, might judiciously be included various series of models illustrating the progress of some of the most useful inventions; such, for example, as the steam engine from its earliest and rudest form to its present most improved state; but this they propose only so far as it may not encroach on ground already covered by the numerous models in the Patent Office.

"Specimens of staple materials, of their gradual manufacture, and of the finished product of manufactures and the arts may also, your committee think, be usefully introduced. This would supply oppor-

¹ Since the Institution was not chartered in a legal sense, but established by Congress, the use of the word "charter" in this connection was not correct.

tunity to examine samples of the best manufactured articles our country affords, and to judge her gradual progress in arts and manufactures. * * *

"The gallery of art, your committee think, should include both paintings and sculpture, as well as engravings and architectural designs; and it is desirable to have in connexion with it one or more studios in which young artists might copy without interruption, being admitted under such regulations as the board may prescribe. Your committee also think that, as the collection of paintings and sculpture will probably accumulate slowly, the room destined for a gallery of art might properly and usefully meanwhile be occupied during the sessions of Congress as an exhibition room for the works of artists generally; and the extent and general usefulness of such an exhibit might probably be increased if an arrangement could be effected with the Academy of Design, the Arts Union, the Artists' Fund Society, and other associations of similar character, so as to concentrate at the metropolis for a certain portion of each winter the best results of talent in the fine arts."

The important points in the foregoing report are (1) that it was the opinion of the Regents that a museum was requisite under the law, Congress having left no discretion in the matter; (2) that ethnology and anthropology, though not specially named, were yet as important subjects as natural history; (3) that the history of the progress of useful inventions and the collection of the raw materials and products of the manufactures and arts should also be provided for; (4) for the gallery of art the committee had models in existence, and they proposed, pending the gathering of art collections, which would of necessity be slow, to provide for loan exhibitions by co-operating with art academies and societies.

In the resolutions which were adopted upon the presentation of the report, a museum was mentioned as "one of the principal modes of executing the act and trust."¹ The work was to go forward as the funds permitted, and, as is well known, the maintenance of the Museum and the library was long ago assumed by Congress, the Institution taking upon itself only so much of the necessary responsibility for the administration of these and subsequent additions to its activities as would weld them into a compact whole, which together form a unique and notable agency for the increase and diffusion of

¹ *Resolved*, That it is the intention of the act of Congress establishing the Institution; and in accordance with the design of Mr. Smithson, as expressed in his will, that one of the principal modes of executing the act and the trust is the accumulation of collections of specimens and objects of natural history and of elegant art, and the gradual formation of a library of valuable works pertaining to all departments of human knowledge, to the end that a copious storehouse of materials of science, literature, and art may be provided which shall excite and diffuse the love of learning among men, and shall assist the original investigations and efforts of those who may devote themselves to the pursuit of any branch of knowledge.

knowledge, for the direction of research, for cooperation with departments of the Government and with universities and scientific societies in America, and likewise afford a definite correspondent to all scientific institutions and men abroad who seek interchange of views or knowledge with men of science in the United States.

Since that early day the only material change in the scope of the Government museum has been the addition of a department of American history, intended to illustrate by an appropriate assemblage of objects the lives of distinguished personages, important events, and the domestic life of the country from the colonial period to the present time.

The development of the Museum has been greatest in those subjects which the conditions of the past three-quarters of a century have made most fruitful—the natural history, geology, ethnology, and archeology of the United States, supplemented by many collections from other countries. The opportunities for acquisition in these directions have been mainly brought about through the activities of the scientific and economic surveys of the Government, many of which are the direct outgrowths of earlier explorations, stimulated or directed by the Smithsonian Institution. The Centennial Exhibition of 1876 afforded the first opportunity for establishing a department of the industrial arts, of which the fullest advantage has been taken, but the department or gallery of the fine arts made little progress, though not from lack of desire or appreciation, until 1906, when circumstances led to its definite recognition. The historical collections have been greatly augmented within the past two years by large collections illustrative of the World War, including a comprehensive series of aircrafts and their accessories.

While it is the primary duty of a museum to preserve the objects confided to its care, as it is that of a library to preserve its books and manuscripts, yet the importance of public collections rests not upon the mere basis of custodianship nor upon the number of specimens assembled and their money value, but upon the use to which they are put. Judged by this standard, the National Museum may claim to have reached a high state of efficiency. From an educational point of view it is of great value to those persons who are so fortunate as to reside in Washington or who are able to visit the Nation's Capital. In its well-designated cases, in which every detail of structure, appointment, and color is considered, a selection of representative objects is placed on view to the public, all being carefully labeled individually and in groups. The child as well as the adult has been provided for and the kindergarten pupil and the high-school scholar can be seen here supplementing their class-room games or studies. Under authority from Congress the small colleges and higher grades of schools and academies throughout the land, especially in places

where museums do not exist, are also being aided in their educational work by sets of duplicate specimens, selected and labeled to meet the needs of both teachers and pupils.

Nor has the elementary or even the higher education been by any means the sole gainer from the work of the Museum. To advance knowledge, to gradually extend the boundaries of learning, has been one of the great tasks to which the Museum, in consonance with the spirit of the Institution, has set itself from the first. Its staff, though chiefly engaged in the duties incident to the care, classification, and labeling of collections in order that they may be accessible to the public and to students, has yet in these operations made important discoveries in every department of the Museum's activities, which have in turn been communicated to other scholars through its numerous publications. But the collections have not been held for the study of the staff nor for the scientific advancement of those belonging to the establishment. Most freely have they been put at the disposal of investigators connected with other institutions, without whose help the record of scientific progress based upon the material in the Museum would have been greatly curtailed. When it is possible to so arrange, the investigator comes to Washington; otherwise such collections as he needs are sent to him, whether he resides in this country or abroad. In this manner practically every prominent specialist throughout the world interested in the subjects here well represented has had some use of the collections and thereby the National Museum has come to be recognized as a conspicuous factor in the advancement of knowledge wherever civilization has a foothold.



OPERATIONS OF THE YEAR.

FINANCES.

The maintenance and operations of the National Museum for the fiscal year from July 1, 1919, to June 30, 1920, were provided for by the following items of appropriation in the sundry civil bill approved July 19, 1919, and the first deficiency act for 1920 approved November 4, 1919:

Preservation of collections-----	\$300, 000
Furniture and fixtures-----	20, 000
Heating and lighting-----	69, 715
Building repairs-----	10, 000
Purchase of books-----	2, 000
Postage-----	500
Printing and binding-----	37, 500
Heating and equipping Aircraft Building-----	14, 000
Total-----	453, 715

In addition, the sum of \$5,640 was transferred to the crédit of the Museum from the appropriations of the Bureau of War Risk Insurance of the Treasury Department, \$2,000 for heating and lighting and \$3,640 for building repairs, to enable the Museum to repair damages to the Natural History Building resulting from its occupancy by the Bureau from October, 1917, to March, 1919.

The appropriations for the year remained practically the same as for the past ten years—excepting those for heating and lighting and for furniture and fixtures, the former being increased to take care of the additional buildings, the latter being slightly reduced from the amount for several years just prior to the war—notwithstanding the fact that since the Natural History Building was constructed about ten years ago approximately three million specimens have been added to the collections. This alone, even if other activities had not been taken up by the National Museum, should warrant a large increase in the appropriation for preservation of collections, from which the entire staff of the scientific, administrative, and executive branches of the service are paid, and a considerable increase in the item for furniture and fixtures.

The Swales Fund and the income from the Francis Lea Chamberlain Fund permitted the acquisition during the year of some specially desired specimens of birds, mollusks, and gems.

LOEB BEQUEST.

Prof. Morris Loeb, the eminent chemist, who died on October 8, 1912, left a bequest of \$25,000 to the American Chemical Society, to be held as a special fund, the income of which should be used for the establishment or maintenance of a chemical type museum, either in connection with the Chemists' Club of New York City, or the National Museum in Washington, or the American Museum of Natural History in New York City, preference to be given in the order named. The chief object of the museum was to be the preservation of all new substances described as the result of chemical research, either by obtaining the same by gift or purchase from the discoverer or by causing the same to be prepared in sufficient quantity according to the discoverer's published directions; all for the purpose of facilitating comparison by subsequent observers. The Chemists' Club of New York accepted the trust.

In the autumn of 1919, the Secretary of the American Chemical Society notified the Smithsonian Institution that the Chemists' Club being unable to comply with the conditions in the Loeb will, had offered to give up their right to the Chemical Type Museum and to refund money in hand, there being over \$5,000 accumulated interest. The Institution indicated its willingness to accept the responsibility, through the National Museum, of building up the collection (museum) proposed by Doctor Loeb. There had been an impairment of the Morris Loeb Fund, owing to the inability of the Brooklyn Rapid Transit Notes to pay interest for a year or two, and the Directors of the Chemical Society took advantage of this opportunity to transfer about \$5,000 of accumulated interest into the fund to replace depletion, leaving a balance of \$909.44 of unexpended income to December 31, 1919, which was delivered to the Institution. The fund should hereafter yield an annual income of about \$1,155, though the amount for the calendar year 1920 will be slightly less.

By means of this income from the Morris Loeb Fund, the Smithsonian Institution proposes to build up in the National Museum "The Loeb Collection of Chemical Types," a permanent reference or study collection of new substances and original material resulting from chemical research, the main purpose of this collection to be the preservation of specimens and chemical material which might otherwise, though of high scientific value, be lost or neglected, and to make such material accessible and available to scientific investigators under proper restrictions. The control or ownership of the specimens is placed in the Institution rather than the Museum to avoid the usual governmental restrictions as to sale and other disposal of materials and to permit the carrying out of the intent of Doctor Loeb in regard to the use of the collection. Steps will be taken to

secure a competent advisory committee composed of eminent chemists of the country to advise on the policy to be pursued in dealing with investigators desiring the use of portions of type material in the Loeb Collection.

The general scheme has the sanction of various governmental chemists, and the Bureau of Chemistry, Department of Agriculture, favoring the establishment of such a collection under the Museum as the proper place for a national collection, offers hearty cooperation, placing at the Museum's disposal in developing this project any of the Bureau's resources in the way of personnel, equipment, and supplies.

The Bureau of Chemistry has itself started to make a collection of the new substances made in the Bureau, and has developed a Special Service for Research Chemists whereby it is furnishing necessary quantities of rare chemicals for investigational purposes, the chief of the Bureau having authority to sell such chemicals at cost. It has accordingly been agreed that the Bureau will turn over to the Museum any chemical types it possesses, as well as specimens of rare chemicals. The Bureau will continue, however, to carry on its Special Service and the index of rare and unique chemicals now maintained by it.

It is hoped shortly to reorganize the division, or section, of chemical industries, in the department of arts and industries, begun in 1886. Insufficiency of funds prevents this being done at once. In the meantime the Loeb Collection, as well as other chemical specimens which the agitation of this subject will doubtless bring to the Museum, will be cared for under the direction of one of the curators in arts and industries.

BUILDINGS AND EQUIPMENT.

The Museum was enabled this year to restore to prewar-time condition the portions of the Natural History Building occupied by the Bureau of War Risk Insurance, from the funds transferred from the Bureau's appropriations. This was accomplished by pointing up the damaged plastered walls on the ground floor, by painting walls and ceilings of halls occupied on that floor by the Bureau, including foyer and rooms on both sides, comfort rooms, and stairways from ground floor to third floor, and by painting the floors of west range and rooms in lobby.

The more important work completed in this building under the appropriation for building repairs was the repairing of settlement cracks in Venetian floors in exhibition halls, first and second floors,

the pointing up of cracks in the walls and ceilings in exhibition halls, the painting of walls and columns, first and second floors, the placing of picture molding on walls of west and northwest ranges, ground floor, and in the Art Gallery, pointing up and painting walls and ceilings in comfort room on third floor and rooms 223 and 224, painting wooden floors in west north and west ranges with deck paint, repointing open seams in granite stone courses and ledges on outside walls and court walls, painting exterior surface of all metal window frames on first and second floors, painting tin gutters on roofs and replacing broken glass in the dome of the rotunda. The stone steps at the south entrance were also repointed. The building in the east court was remodeled by providing doors and portable glass transoms on the west side.

In the Arts and Industries Building the exterior woodwork of the windows in the eight ranges, four pavilions, four towers, and rotunda were painted. An additional dark room was constructed in the photographic gallery, and the lunch room was scraped, pointed up, and painted. A number of the walls in the exhibition halls, office rooms, and laboratories were also repainted.

In the south shed, which is occupied as a laboratory and workshop, an improved system of ventilation was installed in the macerating room and minor repairs of various kinds were made in skylights, windows, and doors.

The first deficiency act for 1920 provided the sum of \$14,000 to enable the Regents of the Smithsonian to heat and fit up for the exhibition of aircraft and accessories produced by this government since the declaration of war, the temporary metal structure erected in the Smithsonian Grounds by the War Department, with the understanding that the custody and control of the building be transferred to the Regents of the Institution by the Secretary of War.

Immediately after the building was turned over to the Institution in November the heating equipment, which was entirely inadequate, was condemned and sold, and the proceeds turned into the Division of Miscellaneous Receipts, Treasury Department, to the credit of the War Department. Arrangements were then made to heat and light the building from the power plant of the National Museum. The steam for the building is carried from the Arts and Industries Building, beneath the roadway, through 2-inch pipes, laid in terra-cotta conduit, to the southeast corner of the Aircraft Building, where it is distributed to a series of radiators placed along the outside walls with a heating surface of approximately 3,240 square feet. In view of the fact that the building is to be used entirely for exhibition purposes no attempt was made to provide the usual temperature of 70 degrees, as temperatures above 55 or 60 are not necessary

or desirable in exhibition halls. Electric lights have also been installed throughout the hall for use on dark days and for police purposes at night.

In order to make the interior of the building suitable for exhibition of airplanes and accessories, the following important alterations and repairs were made: The wooden floor was removed and a new concrete floor laid; the entire ceiling and side walls of the interior of the building, after being completely sheathed, were covered with Neponset wall board and painted and the entire exterior of the building painted.

To prevent condensation ten large, oblong ventilators and louvers were installed in the east and west ends of the building near the roof and the ten small circular ventilators were removed. A concrete platform was constructed at the east end of the building and a glazed vestibule with inner and outer double doors built at this end of the building to be used as a public entrance. Sewers along the north and south sides were provided; all sheets of corrugated metal forming exterior roof and side walls were refastened; a large number of broken glass were replaced, and a new comfort room was constructed and ventilating registers installed in the ceiling. The doors on the north side of the building were closed and two doors on the west side remodeled and installed as emergency exits; a workroom was also provided in the southeast corner 15 feet by 10 feet long and 22 feet deep for use as a combination storage, workroom and office.

There were acquired during the fiscal year 30 exhibition cases and bases, 229 storage cases and pieces of laboratory and office furniture, 198 standard unit drawers, 602 insect drawers, and 388 special drawers.

The inventory of furniture at the close of the year shows 3,585 exhibition cases and 11,405 storage cases, laboratory and office furniture, 46,065 standard wooden unit drawers, 4,712 metal unit drawers, 10,944 insect drawers, 11,059 special drawers with compo bottoms, 4,905 special drawers with paper bottoms, 1,047 unit boxes, 224 wooden unit boxes, and 752 wing frames.

The condition of the watch force remains practically the same as during the war. It has been impossible to secure and keep satisfactory men owing to the fact that the compensation is entirely inadequate. The good men leave in a few months after they are appointed, as they are offered higher wages in private establishments and find it impossible to live in Washington on the pay of a watchman, which is \$720 a year, plus the bonus of \$240 provided by Congress.

Blue prints of museum exhibition and storage cases were supplied to a number of museums in the United States and abroad including

the Army Medical Museum and the National Parks Service, Washington; University of Michigan, Ann Arbor, Michigan; Western University, London, Ontario; Department of Mines, Geological Survey, Ottawa; Canterbury Museum, Christchurch, New Zealand, at the request of Captain Gilbert Archey; and the Bernice Pauahi Bishop Museum of Polynesian Ethnology and Natural History, Honolulu, Hawaii.

The power plant was closed for two months and eight days, beginning July 1, during which time the electric current for light and power was furnished by the Potomac Electric Power Co. at $2\frac{1}{2}$ cents a kilowatt, under contract made by the Treasury Department. While the plant was closed the employees connected therewith took the greater part of their leave so that during the remainder of the year the Museum would not be deprived of their services except for short periods.

There were only two major changes or repairs made during the year: one consisting of the installation of a forced oil feed system for the engines, which had been purchased the previous year, and the other, of the purchase and installation of asbestos covers for four boiler drums, together with the repairing of the covering on the pipes and smoke breeching in the engine room. The installation of this oil feed system, in addition to increasing the efficiency of the engines and reducing cost of repairs, will result in an actual saving of about \$100 a year on the cost of oil.

A new Worthington Duplex pump purchased for removing water of condensation from the main exhaust pipe was also installed. For the first time since the installation of the plant, in 1909, it became necessary to replace the tubes in two of the boilers, and also to have the main bearings of two engines rebabbited. Notwithstanding that the entire plant has been operated under pressure—on account of the requirements of the Bureau of War Risk Insurance in 1917 to 1919 and the addition of the Freer Building to the heating and lighting system—the deterioration is, in the opinion of the engineer, largely due to the inability of the Museum to secure competent men as stokers, firemen, and assistant engineers at the very small salaries paid.

The ice plant, which supplies ice for all of the buildings occupied by the National Museum, was operated for 4,923 hours, producing a total of 317.6 tons.

Owing to the fact that the plant has been thoroughly overhauled and the old oil and ammonia removed, its operation was much more satisfactory than for several years. The cost of repairs, and the material purchased, such as calcium chloride, oil, and ammonia, was \$152.09, so that the actual cost of the ice was less than 50 cents a ton.

If, however, the cost of the current for operating the motor and driving the compressor is included at 3.2 cents a kilowatt, the total cost is \$1,293.24, or \$4.07 a ton.

The fire extinguishers in all of the buildings were as usual overhauled and recharged, and found to be in a very satisfactory condition.

A fire alarm system for the Freer Building was installed, with two of the four gongs in that building, one in the middle hall of the Smithsonian Building, and one on the north side of the Arts and Industries Building. This is known as the closed circuit system, which gives an alarm signal when any portion of the circuit is broken. While the cost of this system is greater than the old open circuit, there is no doubt that the added reliability more than counterbalances the increased cost. Should it prove satisfactory in operation, it is the intention to have this system installed in all of the Museum buildings, so that all of them will be interconnected, and an alarm in one building will be given in all of the others at the same time.

COLLECTIONS.

The total number of specimens acquired by the Museum during the year was approximately 216,871. Received in 1,480 separate accessions, they were classified and assigned as follows: Department of anthropology, 15,254; zoology, 101,554; botany, 35,211; geology and mineralogy, estimated 22,400; paleontology, estimated 40,000; textiles, woods, medicines, foods and other miscellaneous animal and vegetable products, 1,716; mineral technology, 627; mechanical technology, 97; and National Gallery of Art, 12. Loans and deposits for exhibition added 8,348 more, chiefly in the division of history, War Collections.

Material to the extent of 495 lots was received for special examination and report. While this free identification of material sent in from all parts of the country requires considerable time on the part of specialists, it is not without advantage to the Museum in furnishing occasional desirable specimens and in recording new localities.

The distribution of duplicates for educational purposes, mainly to schools and colleges, aggregated 4,306 specimens of which 2,761 were contained in ten regular sets of ores and minerals of 85 specimens each, 6 regular sets of fossil invertebrates averaging 45 specimens each, 3 regular sets illustrating rock weathering of 21 specimens each, 5 regular sets of mollusks of 179 specimens each, and 8 special sets of locusts, 5 of 100 and 3 of 60 specimens each. The remaining 1,545 specimens were sent out in special sendings and comprised anthropological, biological, botanical, and geological

material. In making additions to the collections 16,200 more duplicate specimens were used, nearly 13,000 being plants; for these the Museum has or will receive an equivalent.

Material sent out to specialists for study on behalf of the Museum amounted to 13,838 specimens, mainly biological.

WAR COLLECTIONS.

Through cooperation of the Navy and the War Departments, the stream of material reaching the Museum illustrative of the World War filled the quarters assigned to the division of history in the Arts and Industries Building, overflowing into the Natural History Building, and the Aircraft Building, the temporary metal structure obtained from the War Department.

Prior to July, 1919, very little material had been received illustrating the work of the Navy during the World War, with the exception of some uniforms of the Marine Corps and the insignia of its various branches. At that time it was decided to assign the rotunda of the Natural History Building for this purpose, and after a conference between Assistant Secretary Roosevelt and the secretary and officers of the Museum, Lieutenant Commander L. P. Warren was asked to take charge of this work. A number of exhibits were received during the year, the most important of which are a paravane, which is a device attached to battleships for the purpose of destroying mines; an anti-aircraft gun and a Y depth charge gun for the destruction of submarines; a collection of British naval airplane bombs; a large number of relics from the sunken battleship Maine; a one-pound gun; a German torpedo 18 feet long; a Davis gun for airplanes; and a naval range finder.

During the month of June the large 6-inch naval gun which fired America's first shot in the World War was delivered at the building. Owing to its weight and the impossibility of getting it into the building it was placed on the east driveway, where it makes a most impressive exhibit.

The War Department continued its generous co-operation by contributing material illustrating the military activities of the United States, the Allies and the enemy countries in the following branches: Air service, ordnance, chemical warfare, quartermaster, Engineer, Medical, and Signal Corps. The material was selected especially for the Museum with a view to illustrating graphically the military history of the war for the benefit of the public and for historical and scientific research.

From the Air Service came military airplanes showing types of machines used by the United States, France, and Germany, including a De Haviland 4, tractor biplane of type originally developed

by England and later adopted by the United States for observation and day bombing purposes, equipped with a Liberty motor of 400 horsepower and two Lewis and two Marlin machine guns; a Le Pere tractor biplane of type developed by the U. S. Air Service during the war for fighting purposes, equipped with Liberty motor of 400 horsepower and two Lewis and two Marlin guns; a Martin bomber, twin tractor biplane of type developed by U. S. Air Service for bombardment purposes, equipped with two Liberty motors of 400 horsepower each, and five Lewis machine guns and ten bombs; a Spad, XVI, tractor biplane of type developed and used by French for reconnaissance purposes, equipped with a Lorraine Deitrich motor of 250 horsepower, and one Vickers and two Lewis machine guns; another Spad, XIII, tractor biplane of type developed and used by France, equipped with a Hispano Suiza motor of 220 horsepower and two Vickers machine guns. This airplane, which was part of the 22d Aero Squadron, Air Service, American Expeditionary Forces, has seven victories to its credit, and is of the same type as those with which the famous French flyers Fonch and Guynemer and the American flyer Rickenbacker made a great part of their records; a Fokker, D-VII, tractor biplane, developed and used by the German Air Service for pursuit purposes, equipped with Mercedes motor of 180 horsepower and two Spandau machine guns. This plane was captured at Verdun by Captain H. McLanahan, and Lieutenants E. Curtis and S. Sewall of First Pursuit Group, 95th Aero Squadron, U. S. A., Captain J. Mitchell commanding.

The Ordnance Department and the Quartermaster Corps supplied ordnance equipment of the type used by the various armies for offensive and defensive purposes. Deserving special mention were French and British 75 mm. guns, the type of ordnance most used by the Allies during the war; the American 4.7 gun, the American 37 mm. infantry machine gun, the 75 mm. mountain howitzer and a carriage, the British 8-inch howitzer and the French 155 mm. gun and howitzer; trench mortars of 3 inches, 6 inches and 240 mm., all with full sets of equipment, tools and other accessories; the Browning, Lewis, Hotchkiss and Vickers machine guns, the French St. Etienne machine gun and Chauchat automatic rifle; a complete collection of small arms of type used by the United States during the war, also sectionalized projectiles, including aerial bombs, shells, cartridges, hand and rifle grenades, adapters, boosters, and fuses and a collection of rifles, pistols, and swords illustrating the types of weapons used during the World War by the various armies including the rifles used by the armies of Austria, Belgium, England, France, Japan, Italy, Germany, Russia, Roumania, and Serbia. Of more than passing interest were specimens of silk cartridge cloth

used by the United States Army for powder bags for loading the large guns, and samples of the same material adapted for civilian use.

Of enemy material the Ordnance Department transmitted a large and interesting collection of German and Austrian equipment captured by the American Expeditionary Forces. This included field guns of 77 mm., 105 mm., 135 mm., 180 mm., and 210 mm. caliber respectively, an anti-aircraft cannon of 88 mm. caliber on a very heavy crude wooden carriage said to be the first type of such mount used by the Germans; of machine guns, the heavy Maxim on sled mount, the light Maxim on tripod, the light Maxim on anti-aircraft mount with circular track, the Dreyse gun, light and heavy aircraft, the Austrian Schwarzlose and two anti-tank guns; field kitchen with two-wheeled cart, Red Cross ambulance, Red Cross wagon, blacksmith's wagon, demolition wagon, road repair wagon, various other vehicles, and miscellaneous German commissary, infantry, artillery, cavalry, and signal equipment, some made of paper.

From the Chemical Warfare Service came offensive and defensive equipment used in the chemical warfare by both the armies of the Allied and enemy countries, including gas, smoke and incendiary shells, gas, smoke and incendiary trench mortar bombs, gas projectiles, gas cloud apparatus, smoke producers, flame projectors, chemical grenades, aerial, gas, smoke and incendiary bombs, masks, respirators, helmets, goggles, special clothing and alarms; in each case not only the latest and most up to date objects of the type described but also nearly complete series showing the development of such objects from their earliest form to the most recent.

The Corps of Engineers contributed a collection illustrating the important part played in modern warfare by that branch of the Army, including examples of tools and small equipment and of the large instruments, peculiar to the work of the Corps, which so greatly aided in winning the war. Particularly interesting are a parabolic listening device used for determining the location of enemy aeroplanes at night and directing searchlights against them—a very important feature in combating air raids; a sound ranging set for locating the position of enemy batteries by recording the sound of the guns; a flash ranging set which locates the position of enemy batteries by recording the flashes of the guns; examples of the 36-inch and the 60-inch high intensity electric-arc searchlights and of the 60-inch open type searchlights; models showing the use of camouflage material in trench warfare with dummy silhouettes of soldiers to draw machine gun fire; representation of standard type trench and shelter cave chamber; models of bridges, pontoon boats and wagons, and a camouflaged gun position.

Other contributions, through the Quartermaster Corps, added uniforms and insignia of the types worn by the armies of the Allied and

enemy countries, fully representing the uniform worn by officers and enlisted men of the following countries and the colonial possessions of each: Belgium, France, Great Britain, Italy, Japan, Austria, Germany, and Turkey, the individual personal equipment of officers and men being included with the uniform in each case. This series forms a marvelously complete collection and will be a priceless source of information for historical purposes.

The Medical Department completed the extensive series begun last year of objects illustrating the work of that branch of the United States Army, including field equipment, base hospital equipment and apparatus especially that intended for overseas service. In the three rooms and a part of the foyer on the ground floor assigned to this purpose were duly installed this year under the supervision of Mr. F. L. Lewton, the 4,000 specimens in this collection. The field equipment included first aid kit and emergency belt worn by all enlisted men in the Medical Corps, field operating table, instruments, dressings, and other supplies, complete portable dental outfit, emergency dental outfit for carrying in hand, field kitchen, portable disinfecter, water-sterilizing outfit, and portable steam sterilizer, litters, ambulances, etc. The base hospital material, for exhibition, was grouped as follows: The X-ray laboratory, showing all important fixed and movable types of X-ray equipment; the hospital ward of three beds with various equipment; general operating room of a military hospital; anesthesia room; eye, ear, and throat clinic; fracture room; dental clinic; sterilizing room; bacteriological laboratory; serological laboratory, pathological laboratory, and chemical laboratory. This exhibit was opened to the public on March 1, 1920.

The pictorial material of the War Collections was increased by a series of nearly five hundred drawings and paintings by the official artists of the American Expeditionary Forces, namely: W. J. Aylward, W. J. Duncan, Harvey Dunn, George Harding, W. Morgan, E. Peixotto, J. A. Smith, and Harry Townsend, received from the War Department. These pictures were installed in rooms 45, 46, and 47 of the Natural History Building, most of them being hung on the walls in their original frames, but the smaller ones were removed and placed in the Museum standard wing frames. These rooms were opened to the public on May 28.

To the numismatic section of the War Collections was added a collection of representative war decorations and medals of Great Britain, France, Italy, Germany, Austria, and Turkey, and a series of bronze and silver commemorative medals issued by Belgium, France, Great Britain, Greece, Holland, Italy, Montenegro, Roumania, Russia, and Serbia in commemoration of notable events during the war.

The National Society of the Colonial Dames assisted also in building up the War Collections by lending a very interesting and striking series of uniforms of the type worn by American women members of war organizations, including those of the American Red Cross, National League for Women's Service, Woman's Land Army of America, American Committee for Devastated France, American Fund for French Wounded, National Catholic War Council, Jewish Welfare Board, Young Men's Christian Association, American Friends Service Committee, American Library Association, Young Women's Christian Association, National War Work Council of the Young Women's Christian Association, United States Marine Corps, Signal Corps Telephone Unit, Emergency Aid of Pennsylvania, and the Salvation Army.

Early in the year the space assigned to the War Collections was increased by two large ranges on the ground floor of the Natural History Building. In one was installed the collection of foreign uniforms, insignia and decorations showing the various types of military costumes worn by the armies of the Allies and the enemy countries during the war, and the collections of captured German military equipment, for which the Museum was indebted to the Quartermaster General of the U. S. Army, Major General H. L. Rogers, under whose direction they were assembled for installation. In the second range were placed the collections of chemical warfare and ordnance material. The west and central portion of the foyer of this building was given over to the Corps of Engineers for its exhibit: a portion of the foyer and three rooms on the east to the exhibit of the Medical Department, heretofore mentioned, and the walls of three rooms on the west of the foyer to the pictorial material. In the Arts and Industries Building were placed on display captured German ordnance material, small arms of the Allies and enemy countries, American ordnance equipment, and the collection of uniforms worn by the women's organizations. Out of doors, on the west side of this building, were placed the German field guns, and the airplane exhibit is being assembled in the Aircraft Building.

The War Department rendered great assistance to the Museum in putting this material on display, preparing labels, etc. Indeed without such assistance the Museum could have made little progress in this direction, the small force of the division of history, under which the War Collections are administered, being entirely inadequate to the huge task. Capt. J. J. Hittinger of the Quartermaster Corps continued on detail to the Museum throughout the year, giving general supervision to the assembling and installation of material; Maj. John McLaren was detailed from the Ordnance Department in connection with the ordnance section of the war exhibit, personally superintending the installation of the field guns and accessories in

the rotunda of the Arts and Industries Building and the collection of ordnance material in the Natural History Building. In August Capts. E. W. Jepson and J. E. Costello were detailed from the War Department to install material then on hand from the Corps of Engineers. Later these officers were transferred elsewhere, and Sergt. Burns A. Stubbs was detailed, under Lieut. T. N. Ellman, to finish the installation of all exhibits from the Corps, which was completed by the end of May and opened to the public. Capt. A. P. Mooradian, of the Surgeon General's Office, rendered valuable service in planning and supervising the wiring and setting up of the equipment of the X-ray laboratory, in the exhibit of the Medical Department, all of which is operative.

OTHER COLLECTIONS.

In other lines than the War Collections the Museum acquired much material of value and interest. In American history the additions included a large collection of uniforms of the types worn by the armies of 23 foreign countries prior to the World War; 226 complete uniforms of the types worn in the United States Army from 1776 to 1909; material relating to the career of Cyrus W. Field and the laying of the first Atlantic telegraph cables; miscellaneous scientific apparatus used by Joseph Henry, (1799-1878) during the latter part of his life, the gift of his daughter, Miss Caroline Henry; watches owned by Major General George B. McClellan, U. S. Army; swords and other military relics of Major General John R. Brooke, U. S. Army; mementoes of Susan B. Anthony and objects illustrating the history of the woman's suffrage movement in the United States from 1848 to 1919; and, for the series of costumes of mistresses of the White House, a black velvet dress worn by Mrs. Woodrow Wilson, and a lace flounce completing the inaugural dress of Mrs. James A. Garfield. The philatelic material was increased by 5,872 specimens, of which 4,345 were transferred from the U. S. Post office Department, and of these 2,475 are examples of new issues reaching that Department from the International Bureau of the Universal Postal Union.

The collections received in ethnology show markedly the rapid decline of Indian material and a corresponding though less rapid disappearance of material in areas less modified. The receipts included Western Indian baskets donated by Miss Ella F. Hubby; valuable material collected during the period of military occupation of the Philippines received as gifts from Mrs. Thomas F. Dwyer and Miss Kline, Major General Joseph C. Breckenridge and the late Lieutenant Colonel Duncan Elliott, U. S. Army; and pottery and objects in silver, pewter, and brass bequeathed to the Museum by Miss Elizabeth S. Stevens.

The division of American archeology reports its yearly increase due largely to contributions from the Bureau of American Ethnology, including collections made in Arizona, Utah, and Colorado by Dr. Walter Hough; in Texas by Dr. J. W. Fewkes and Prof. J. E. Pearce; in Missouri by Mr. Gerard Fowke; and in Utah by the curator, Mr. Neil M. Judd. The Bureau also transferred a collection of archeological specimens obtained by it as gift from the Otto T. Mallery expedition.

The collections in Old World archeology benefited too by the bequest of Miss Elizabeth S. Stevens, receiving nearly a hundred objects of Christian and Buddhist religious art in wood, copper, bronze, and silver. Other additions included ancient coins from Captain Clarence L. Wiener; casts of engraved antique gems from Dr. William H. Dall; and casts of Oriental seals made in the Museum from originals owned by Mrs. Talcott Williams. The collection of Bibles was supplemented by the two copies of the New Testament in English from which Thomas Jefferson cut the English version of his "The Life and Morals of Jesus of Nazareth"—the so-called "Jefferson Bible"—donated by Miss Bertha Cohen and her nieces.

In physical anthropology the most important accessions were skeletal material as follows: from New Mexico, gift of the Museum of the American Indian, Heye Foundation; from Nevada, donated by Hon. William Kent; from Tennessee and Kentucky, partly gift and partly a loan from W. E. Myer; and Missouri collected by Gerard Fowke, and from Arizona collected by Dr. Walter Hough, transferred to Museum from Bureau of American Ethnology. A Neolithic skull was received in exchange from the University of Liège, Belgium, and a plaster bust representing a form of early man by purchase. The trip of the curator, Dr. Aleš Hrdlička, to the Far East added to the collections some 2,000 portraits of peoples of that locality.

Mr. Hugo Worch contributed three pianos and a harpsichord to the series he is building up here representing the history of the piano-forte, and from Mrs. J. Ryan Devereux came a noteworthy collection of 81 musical instruments of various types.

The additions in graphic arts included a collection of several hundred specimens of wood engravings, mezzotints, aquatints, etc., donated by Mr. Earle W. Huckel; miniature mosaics from Mr. Stockton W. Jones, showing a method of making pictures not heretofore represented in the division; saphiograph reproductions from the Crane Lithograph Company; and American-made vellum from Mr. George A. Hathaway. The section of photography was enriched by photographic apparatus used by Dr. Edward Muybridge in his study of motion in animals, presented by the Commercial Museum of Philadelphia.

In the ceramic gallery loans were credited from Miss E. B. Lowe of old English porcelain, and from Miss Eliza Ruhamah Scidmore of Japanese porcelain and bronze.

The additions to the biological collections aggregated approximately 136,765 specimens. Not only was the year numerically a very prosperous one, but the reports of the curators show a gratifying increase in the scientific importance of the material received. This is particularly true of the division of birds in which no less than 163 species new to the collection were among the accessions. This splendid result was to a great extent due to the liberality of Mr. B. H. Swales, of Washington, District of Columbia, who placed a fund at the disposition of the Museum for this particular purpose. No less important was the material received through the continued generosity of Dr. W. L. Abbott. Impressed by the importance of securing for the Museum an adequate representation of the fast disappearing higher vertebrate fauna of Australia, he granted the means to send Mr. Chas. M. Hoy to that continent for the purpose of collecting especially mammals and birds. No less than 240 specimens of the former and 228 of the latter from a region hitherto very poorly represented in the national collection are contained in this first installment. Doctor Abbott's personal explorations in Haiti have also yielded very important additions. A third expedition was of particular interest as supplementing our African collections which were hitherto confined chiefly to the eastern side of the continent, namely, the Collins-Garner expedition to the French Congo. More than 2,350 mammals, birds, reptiles, fishes, and invertebrates were thus added, among them 2 gorillas, 2 chimpanzees, 2 buffalos, etc. The first installment of another African expedition, carried out by the Institution in conjunction with the Universal Film Manufacturing Company, contained 239 mammals and birds from southern Africa, still further contributing to the excellency of our series from the dark continent.

Among the large collections of insects acquired, the following are especially noteworthy: Mr. B. Preston Clark presented 5,500 lepidoptera of the Hawaiian Islands and South America. Similarly Dr. William Barnes donated 2,000 moths, including 60 types, and 150 butterflies. From Dr. W. M. Mann, through the Bureau of Entomology, the Museum received 6,000 insects of various orders, collected by him in Honduras, and similarly from Dr. E. A. Schwarz a collection of 5,770 miscellaneous insects made in Florida. Besides 6,930 specimens transferred by the Department of Agriculture, numerous accessions were received from Costa Rica, Australia, South Africa, Mexico, etc.

The mollusk collection was the recipient of two particularly valuable and important gifts, namely, the collection of Hawaiian marine shells donated by Mr. D. Thaanum and a part of the William F.

Clapp collection of New England land and freshwater mollusks, about 10,000 specimens purchased and presented by Mr. John B. Henderson. The former, consisting of about 5,000 specimens collected by Mr. Thaanum and Mr. J. B. Langford, has long been known as the best existing collection of authentically located marine Hawaiian shells. As in previous years, the Bureau of Fisheries forms one of the chief sources of our material of marine invertebrates, including specimens collected during the cruises of the *Albatross* and the *Bache* reported on by Mr. Sasaki, Dr. A. L. Treadwell and Dr. H. B. Bigelow. Numerous other accessions from collectors and collaborators were remarkable for the great number of types of new species added during the year.

The botanical collections accessioned include highly valuable material from all over the world. Besides important North American collections, there are represented plants from Mexico and Central America, Colombia, British Guiana, Brazil, Argentina, Europe, Africa, China, Sumatra, etc. The Department of Agriculture transferred 8,190 specimens, mostly the result of field work of the Bureau of Plant Industry. The Forestry Commission of the Mexican state of Sinaloa transmitted 887 specimens from little known parts of that state. A large number of plants were obtained in exchange; the largest lot consisting of 2,398 specimens received from the New York Botanical Garden, mostly plants collected in Colombia by Rusby and Pennell. Likewise in exchange there were acquired from the Botanical Museum of the University at Copenhagen 923 specimens of Mexican and Central American plants, chiefly material collected a long time ago by Liebmann and Oersted and therefore of unusual historical interest and value.

The additions to the collections in the department of geology during the year were 180 lots against 135 for the year previous, with a decided increase in the number of specimens and their scientific value. Of these accessions, 111 were gifts, 32 transfers, 25 exchanges, 2 were collections by members of the force, 1 received as a deposit, and but 9 acquired by purchase. Among those of greatest importance were gifts comprising ores of the rare metals, particularly tungsten and molybdenum, secured chiefly through Mr. Frank L. Hess of the U. S. Geological Survey, but honorary custodian in the Museum. The donors included Mr. C. W. Purington, Vladivostok, Siberia; Mr. J. G. Hibbs, Denver, Colorado; the Homestake Mining Company, Lead, South Dakota; the R. and S. Molybdenum Company, Questa, New Mexico; and the Molybdenum Mines Company, Denver. Other important additions were made by Dr. J. Morgan Clements of New York, traveling in China in the interest of the Federal Trade Commission, and Mr. M. L. Patterson, manager of the Thabawleik Mines, Mergui, Burma.

An excellent series of crystallized native copper and silver minerals from the Lake Superior region was acquired by purchase and gift, and a large slab of native copper, simulating in outline the continent of South America, was received from the Bolivian delegates to the Second Pan American Financial Conference.

The meteorite collection was enriched by examples of the following stones: Colby, Wisconsin, 3,642 grams; Bjurböle, Finland, 2,500 grams; Washington County, Kansas, 2,003 grams; Kesen, Japan, 1,397 grams; and Appley Bridge, 598 grams. In addition was acquired 3,320 grams of an iron from Yenberrie, Australia.

Valuable collections in the form of minerals and invertebrate fossils, comprising many thousands of specimens, were received from the U. S. Geological Survey, as was also a large series of igneous rocks from the Yellowstone National Park, described by Dr. J. P. Iddings in volume 32 of their monographs.

Large collections from the West Indies, particularly from the Dominican Republic, have been added to the series of invertebrate fossils, which have been further augmented by some 10,000 specimens from the Upper Cambrian of Wisconsin.

To the exhibition series have been added a large and unique specimen of trilobite, the largest American form in existence, which was found during excavations in connection with the conservancy dam at Dayton, Ohio; a mounted skeleton of the large, extinct mammal, *Brontotherium hatcheri*; the sea-living lizard, *Tylosaurus proriger*; and a diminutive camel *Stenomylus hitchcocki*. The study collections in vertebrate paleontology were augmented by a considerable number of type specimens, deposited by the Maryland Geological Survey, which, though fragmentary, are of primary interest. Of equal importance are gifts of Pleistocene bones and teeth from a cave near Bulverde, Texas, donated by Dr. O. P. Hay, and similar material from Cavetown, Maryland, gift of Phillips Academy, Andover, Massachusetts.

The gem collection has been thoroughly overhauled, reweighed, and recatalogued, and a handbook and catalogue of the same prepared, the manuscript of which is now in the hands of the Government Printer.

The work of preparing 100 sets of 85 specimens each of ores and minerals for distribution to schools, mentioned in the report of last year, has been completed and the sets are now ready as occasion shall demand.

The collections under the supervision of the curator of textiles, which, besides textiles, embrace medicine, food, wood technology, and miscellaneous animal and vegetable products, were increased by many gifts and by transfer from other government bureaus amounting to over 2,000 objects. The most important of these are as follows:

The division of textiles received for exhibition from the Department of Ordnance, War Department, specimens of silk cartridge cloth which was so essential in the preparation of separate loading ammunition for all the large guns taking part in the Great War; also examples of this same fabric showing the results of the experiments made to demonstrate the value for civilian uses of the eleven million yards sold as surplus material. There were added by gift many specimens of knitted fabrics contributed by American manufacturers, and made from artificial silk, wool, and mohair.

The collections in the division of medicine were enlarged by a series of pharmaceutical preparations illustrating the various forms in which medicinal substances are prepared for administration, a series of essential oils, and an addition to the materia medica collections of a large number of inorganic chemicals. The exhibits planned to illustrate the basic principles of different schools of medicine were increased by many gifts, and the one devoted to Homeopathy completed. The section of pharmacy received many documents and publications bearing on the history of the United States Pharmacopoeia, and the complete series of written and printed records of the last revision of this important work amounting to many thousands of pages.

The exhibition collections of the section of wood technology were much improved by a transfer from the Forest Service of twenty-five colored transparencies and forty-eight colored bromide enlargements especially prepared for the National Museum, representing typical forest scenes, methods of lumbering and forest industries, and by the gift of exhibit material illustrating the use of wood waste and wood pulp.

Many specimens of edible and inedible oils, developed as a branch of the meat-packing industry, and samples of the official tea standards, used from 1915 to 1920, to control the quality of the foreign teas imported by the United States, were added to the collections of animal and vegetable products.

In the division of mineral technology the principal addition was a working model of a salt works, donated by the Worcester Salt Company, being a replica of that company's operations near Warsaw, New York. A system of circulating water is caused to mine the native salt, bring it to the surface in solution and finally to surrender it, the whole taking place before the visitor's eyes. The National Lead Company contributed 26 large transparencies and about 600 exhibition samples needed in completing the comprehensive exhibit illustrating the lead industry undertaken several years ago, and which now lacks only competent technical direction in installation. The work of the division was largely at a standstill, by the transfer elsewhere in the Museum at the beginning of the year of

one of the members of its scientific staff and the resignation soon afterwards of the remaining two members. Mr. Gilbert, after severing active relations continued, under appointment on an honorary basis, to give advisory supervision over these collections, all of which had been developed under his direction. It is hoped that another year will find this division manned and again to the front as it was so signally during the period of the war.

Probably the most important addition to the collections of the division of mechanical technology during the year was a twelve cylinder Liberty airplane motor, the gift of the Lincoln Motor Company. The motor is complete in every detail and in addition, various portions are cut away to show the interior parts in operative relation. Another accession of note was a replica of the original typographer, invented and patented by William Austin Burt in 1829, the gift of his grandson, Hiram Austin Burt. As representative of the early beginnings of the American typewriter this forms a very important addition to the exhibit showing the development of the typewriter. The time-keeping collections were enhanced by the gift of two watches from Mr. George W. Spier, honorary custodian of watches. In the section of marine transportation there was added a model of one of the freight ships built at Hog Island Shipyard in 1919, received from the United States Senate Committee on Commerce, through Senator Wesley L. Jones, Chairman.

Early in the year plans for the future development of the division of mechanical technology were formulated, the end in view being a Museum of Engineering. Accordingly, the collections in care of the division were first rearranged in the halls, the basis of rearrangement being the kind of object rather than the source, thus, one hall now includes all objects relating to land transportation and aerial transportation; another hall, marine transportation; another hall, metrology and mechanical transmission of intelligence. This work required the full time of the division's force during the year.

The reports of the head curators in the natural history departments and of the curators in the department of arts and industries, beginning on page 57, give in detail the additions to and the work on their collections during the year.

NATIONAL GALLERY OF ART.

The National Gallery of Art—the department of fine arts of the Museum—continued in charge of Dr. W. H. Holmes, as curator, the collections occupying mainly the central skylighted hall on the first floor of the north wing of the Natural History Building. Good progress was made during the year in the acquirement of art works and constant attention was given to all classes of exhibits

and especially to the manner of their presentation to the public. The additions were not numerous, but comprise works and objects of very considerable museum value not, however, comparable in importance with the accessions of the year before. Twenty works of painting and sculpture were added, including eight loans. A model in plaster of a monument entitled "The Victory of Liberty" by Branko Dechkovitch, the Jugo-Slav sculptor, accepted by the President in Paris, France, as a gift to the United States, was received by the Museum through the Department of State. Of very great historical and general interest is the full-length statue in white marble by Mr. Francis Derwent Wood, R. A., of William Pitt, gift of the Duchess of Marlborough and other American women in Great Britain. Deeply incised on the gray marble base is the inscription: "This statue of William Pitt, Earl of Chatham, the British champion of American Liberty, presented by American women living in the United Kingdom as a memorial of the hundred years peace between the two kindred nations & as an expression of their love for the land of their birth and the land of their adoption. 1815-1915." Among the accessions of particular importance are two pieces of sculpture, the gift of Mrs. Benjamin H. Warder: "The Greek Slave" by Hiram Powers, a superb work, understood to be one of the several replicas made by Powers with the assistance of a skilled Florentine sculptor, the dimensions being three-fourths that of the original; the second is a charming work, "The Sleeping Children" by William Rinehart, Rome, 1869. A conspicuous and very welcome gift during the year is the "Portrait of a Lady" by Andres Zorn, 1900, done in his very brilliant style. The Gallery is further enriched by a "Portrait of John Muir," explorer, naturalist and author, by Orlando Rouland, the gift of Mrs. E. H. Harriman; and a half-length portrait of the Hon. Andrew D. White, by G. Stanley Middleton, gift of Mr. Clifford D. Middleton. Additional works are an oil painting by George Inness entitled "Elf Ground," gift of Mrs. Emily K. Andrews; and a portrait of Gen. Albert J. Myer, first Chief Signal Officer of the U. S. Army and founder of the U. S. Weather Bureau, by George P. A. Healy, bequest of his daughter, Miss Viola Walden Myer. The following were received as loans: An oil painting "Portrait of San Lorenzo Guistini-ano," attributed to Gentile Bellini, presented to the American Red Cross by the City of Venice as a token of gratitude for the work of the American Red Cross during the war with Germany, lent by the American Red Cross through Mr. Stockton Axson, chairman of the Red Cross Museum committee; an oil painting entitled "The Philistines Attacked with the Plague" by Nicolas Poussin, color sketch for his large picture in the Louvre, collection of Louis XIV, lent by Dr. W. H. Holmes; an oil painting "The Holy Family,"

attributed to Raphael Urbinas, lent by Mr. Walter Swinney; a bust in Carrara marble of the Hon. Champ Clark by Moses Wainer Dykaar, lent by the artist; three paintings, "Dedham Vale" by John Constable, "The Doctor's Visit" by Jan Steen, and "Christ in the Temple" by G. B. Tiepolo, lent by Ralph Cross Johnson; a portrait of Dr. W. H. Dall by Wilford S. Conrow, lent by the artist; two large vases, French faience, lent by Mrs. Benjamin H. Warder. On request of Mr. Duncan Phillips, the portrait of Ellwood Hendrick, by A. V. Tack, previously presented by him, was returned to him, and a landscape, "The Island" by Edward W. Redfield, was accepted in exchange.

Gratifying advance was made in the utilization of the fund provided by the will of Henry W. Ranger for the purchase of art works which, under certain conditions, are to accrue to the National Gallery. The provision of the document is as follows: "All pictures so purchased are to be given by the Council to art institutions in America or to any library or other institutions in America maintaining a gallery open to the public, all such gifts to be upon the express condition that the National Gallery at Washington, administered by the Smithsonian Institute, shall have the option and right, without cost, to take, reclaim and own any picture for their collection, provided they exercise such option and right at any time during the five-year period beginning ten years after the artist's death and ending fifteen years after his death, and, if such option and right is not exercised during such period, the picture shall remain and be the property of the institution to which it was first given." The selection of works to be purchased by this fund is entrusted to a committee of the National Academy of Design, of which Mr. Edwin H. Blashfield, President of the Academy, is chairman and Mr. C. C. Curran, secretary. During the year four paintings were purchased by this fund, two of which—"Grey Day" by W. Granville-Smith, N. A., and "Evening Tide, California" by William Ritschel, N. A.—were duly forwarded and are now on view in the Gallery; the others are "The Rapids" by W. E. Schofield, N. A., deposited in the Brooklyn Museum and the "Orange Bowl" by Anna Fisher, the assignment of which has not yet been announced. It is gratifying to know that by this bequest the Gallery is assured of a number of worthy additions each year.

During the year the Rev. Alfred Duane Pell continued to add to his collection of art objects presented and lent to the Museum and installed in the long room at the north end of the Gallery. The installation was not yet complete at the close of the year and is still unlabeled, but the importance of the varied and extensive gift is clearly apparent.

A number of paintings, very generously lent to the Gallery during this and previous years, were withdrawn. The list is as follows: A painting, "In the Grand Canyon of the Colorado" by Thomas Moran, returned to Mrs. J. W. Powell; a painting, "A Rocky Mountain Solitude" by Thomas Moran, returned to the artist; portrait of Maj. Gen. John P. Van Ness, returned to Maj. J. Van Ness Philip; portraits of Maj. E. Alexander Powell and Miss Clara J. Gordon, by Wilford S. Conrow, returned to the artist; a painting, "Autumn" by Thomas Cole, returned to Mrs. C. V. Purdy; four paintings: "Interior" attributed to Adrian von Ostade, "Interior" by L. Fissette, picture of dogs by Z. Noterman, and portrait of Rembrandt, attributed to himself, returned to Mr. Benson B. Moore; two oil paintings, "Portrait of Lamartine" and "Washington at Valley Forge," returned to Mrs. Adelaide Powell; 12 oil paintings from the collection by leading contemporary French and British artists, lent by the American Federation of Arts through Miss Leila Mechlin, secretary, returned to the Federation; 21 paintings, 2 bronzes and 2 casts in plaster by Edward Kemeys and other artists, returned to Mrs. Laura Swing Kemeys; a painting, copy of Murillo's "Beggars," returned to Mrs. Henry Wells; water color, "Rhone Valley" by John M. W. Turner, returned to Miss Elizabeth Ogden Adams; a painting, "A Farnese Investiture," returned to Mrs. Estelle Bakewell-Green; a portrait of Mrs. Henrietta Auchmuty by Gilbert Stuart, returned to Mrs. L. M. Chapman.

Among the numerous changes made in the installation of art works may be mentioned the removal of a large painting, "The Battleship Oregon," from the south room of the main hall to one of the rooms devoted to works relating to the World War. This fine work was loaned to the gallery February 7, 1917, by the artist, William F. Halsall, of Provincetown, Massachusetts, whose death occurred November 10, 1919. The gallery is deeply indebted to Mr. Halsall for the gift in 1916 of a superb painting "The Song of the Sea" now in its place on the gallery walls. Removal of the battleship painting from the gallery made it possible to restore to the gallery the very large triptych, a fire etching by James William Fosdick, entitled "Adoration of Saint Joan of Arc," belonging to the Evans collection. Frequent changes and readjustments in installation of works were made. Labels were added where needed and the glass of most of the paintings was removed and cleaned. Much time was spent by the curator in identifying the very large collection of plaster busts of prominent personages, mostly of past generations. Owing to the failure of the sculptor or of the custodian of casts in the early days to mark the busts a number cannot now be identified. It should be stated, however, that many of these busts are of persons prominent in history, literature, or science and are not as a whole of a degree of

excellence permitting their assignment to the gallery as works of art. The preparation of a catalogue of the gallery bringing the record up to date was carried to practical completion. The last issue of the catalogue, prepared by Assistant Secretary Rathbun, is dated 1916, and it is regarded as important that a new edition be printed as soon as practicable. The present catalogue embodies, with an appropriate introduction, a simple list of the works now in the gallery and a reference list of artists with brief biographies.

The membership of the Advisory Committee on the National Gallery of Art remains the same as heretofore: Dr. W. H. Holmes, chairman; and Messrs. Edwin H. Blashfield, Herbert Adams, Douglas Volk, and Edmund C. Tarbell.

The National Art Committee, a voluntary organization formed for the purpose of securing portraits by American artists of all individuals prominently connected with the World War and the Peace Conference, reports that work on the project has proceeded vigorously. At the present time portraits have been painted of quite a number of the leading officers of the various armies and of the leading civilians connected with the peace negotiations. It is expected that all will soon be completed. When finished the paintings will be exhibited in some of the larger cities of the country and then be turned over to the National Gallery of Art for a National Portrait Gallery. It will be the finest historical series of its kind that can possibly be obtained, and all the expense is provided for by subscriptions of people interested in the movement. Mr. Henry White of Washington, a Regent of the Smithsonian Institution and one of the United States Commissioners to the Peace Conference, is honorary chairman of the committee, Mr. Herbert L. Pratt of New York City its secretary and treasurer, and the members are scattered in all parts of the United States.

Doctor Holmes attended the Eleventh Annual Convention of the American Federation of Arts, held in the Metropolitan Museum of Art, as the representative of the National Gallery, May 19-21, 1920. The meetings were well attended, and the discussions covered a wide range of important subjects. He also had the opportunity of attending the celebration of the Fiftieth Anniversary of the foundation of the Metropolitan Museum, which comprised a session during Tuesday devoted to memorial exercises, and a banquet in the evening.

It is a matter of particular felicitation that in June Congress granted a fund sufficient to permit the organization of the Gallery as a separate unit of the Smithsonian foundation and to provide a modest curatorial staff, thus relieving the Museum of a rapidly growing burden and at the same time affording the long delayed opportunity of laying the foundation requisite to a reasonable and symmetric development of the nation's Gallery of Art.

FREER COLLECTIONS.

It is with regret that I have to record the death of Charles Lang Freer in New York City on September 25, 1919, at the age of 63 years. In 1906 Mr. Freer presented to the Smithsonian Institution his collections of American and Oriental art upon condition that they should remain in his possession during his life, and at the same time he provided in his will \$500,000 for the erection by the Smithsonian Institution of a suitable building for housing them near the National Museum. He reserved the right to add to the collections, and in the intervening years he has about tripled the number of objects originally transferred by title to the Institution. Increasing the building fund to one million dollars and waiving the original conditions, Mr. Freer in 1915 decided upon the early erection of the structure and the transfer of the collections to Washington. That Mr. Freer was not permitted to see the consummation of his plans for the development of the art interests of his country is greatly deplored, as his experience and advice would be invaluable in inaugurating this independent unit of the National Gallery of Art which he so generously provided. The building and collections represent an outlay of some six or seven million dollars and constitute one of the most important and valued donations which any individual has ever made freely and unconditionally to the nation.

The Building for the Freer Collections, on the southwestern corner of the Smithsonian Reservation, was begun in 1916 by the Institution from funds donated by Mr. Freer, and presents an exterior of pink granite, with a frontage on the Mall of 228 feet, a depth of 185 feet and a height of 46 feet, and with an open central court about 65 feet square. Beautiful and effective in general design, it shows in interior plan a thorough adaptation to the requirements of the collections, both as to space and to lighting, with such facilities as makes it practically an independent unit of the Smithsonian group. Above the ground level, the structure consists only of a basement and main story, the former lighted by windows, the latter principally by skylights, leaving the upper part of the walls essentially unpierced except for the entrances, of which that on the north front comprises three large arched openings.

The main story will be entirely devoted to exhibition purposes and is divided into 19 galleries of varying sizes reached by wide corridors, each gallery designed for a particular subject or class of objects. The Whistler collection will occupy five of these rooms. The central court is a special feature of this story, large arched openings lighting the adjoining corridors and loggias. In the basement, which is a well lighted story, are located large studios (or study rooms), rooms for the storage of such parts of the collections as are not on exhibition, a lecture hall, an office for the curator, and work and comfort rooms, furnishing in fact all necessary con-

veniences for administration, for serious study and for popular instruction. The entire available floor space of the main and basement stories aggregates some 55,000 square feet, about equally divided between the two floors. A sub-basement provides space for the appliances connected with the heating, lighting, and ventilation of the building, but steam and electric current will be supplied from the central plant of the Museum.

During the past year this building has been brought nearly to completion, despite delays now characteristic of the building business. The chief items unfinished by the contractor at the close of the year were the glazing of the ceiling lights in several of the galleries (due to excessive breakage of imported glass), the reflector lighting above the ceiling lights, the installation of register faces, and the completion of the painting of the gallery walls. The central court has been carefully laid out with walks, gardens and fountain. The temporary fence has been removed from about the building, and arrangements made with the Officer in Charge of Public Buildings and Grounds for laying out the driveways to the building and otherwise improving the grounds immediately surrounding it.

While the exact number of specimens in the Freer Collections will not be known until actually delivered to the Institution, in 1918 they exceeded 6,000, of which something over 1,000 were American and of these four-fifths were the work of Whistler, including his famous Peacock Room. The Oriental collection, some 5,000 items, consisted of Chinese and Japanese paintings on screens, panels, kakemono, makimono, and albums; of pottery, chiefly from Japan, Korea, China, Mesopotamia, Persia, and Egypt; of Egyptian glass; and of figures, statuettes, sculptures, mirrors, boxes, etc., in bronze, stone, wood, lacquer, etc. The collections also contain some important ancient Biblical manuscripts obtained in Egypt.

About the middle of the year the Peacock Room, that celebrated decoration executed by Whistler as a setting for his painting "La Princesse", was transferred from the residence of Mr. Freer in Detroit and set up complete in a room specially designed for its reception at the southeastern corner of the building. By the close of the year the executors of Mr. Freer's estate had begun to ship to Washington other portions of the Freer Collections. These will be stored in the various storage quarters in the building until the structure is entirely completed and the installation of the collections can be undertaken.

It will be recalled that the Freer Gallery is designed to accommodate only the Freer Collections, and to provide for the study and appreciation of their varied contents, which supply a vast amount of material for research work by specialists. Its completion, though insuring an incalculable gain for the Museum and the public, will

not, therefore, satisfy any of the needs set forth in the last report in respect to additional space for the national collections.

VISITORS.

The number of visitors to the Natural History Building during the year aggregated 321,568 for week days and 101,416 for Sundays, being a daily average of 1,024 for the former and 1,950 for the latter. At the Arts and Industries Building, which is open only during the week, the total attendance was 250,982, a daily average of 799. The Smithsonian Building, like the Arts and Industries Building, is ordinarily only open to visitors on week days, but an exception was made for a few Sundays in March and April, 1920, when there was on exhibition a series of exquisite water color paintings of wild flowers by Mrs. C. D. Walcott. The total attendance in this building for the year was 84,223 on week days and 1,790 on the five Sundays, averaging 268 for the former and 358 for the latter.

It is highly desirable that all three buildings should be open at least a part of each Sunday to give persons employed during the week an opportunity to view the nation's collections. This will be possible when additional funds are provided to cover the extra watchmen and other attendants required.

The following tables show, respectively, the attendance of visitors during each month of the past year, and for each year since 1881, when the building now devoted to arts and industries was first occupied.

Number of visitors during the year ending June 30, 1920.

Year and month.	Museum Buildings.		Smithsonian Building.
	Arts and Industries.	Natural History.	
1919			
July.....	24,755	33,631	7,812
August.....	29,501	45,392	9,594
September.....	29,697	44,974	9,690
October.....	21,401	36,906	7,245
November.....	18,971	38,420	5,875
December.....	13,149	23,751	4,992
1920			
January.....	11,491	22,914	4,264
February.....	10,198	21,740	3,439
March.....	15,815	32,204	6,371
April.....	23,207	38,954	8,121
May.....	27,556	46,089	9,978
June.....	25,271	38,009	8,632
Total.....	250,982	422,384	86,013

Number of visitors to the Museum and Smithsonian buildings since 1881.

Year.	Museum buildings.		Smithsonian Building.	Year.	Museum buildings.		Smithsonian Building.
	Arts and Industries.	Natural History.			Arts and Industries.	Natural History.	
1881.....	150,000	.....	100,000	1911-2.....	173,888	.....	144,107
1882.....	167,455	.....	152,744	1902-3.....	315,307	.....	181,174
1883.....	202,188	.....	104,823	1903-4.....	220,778	.....	143,988
1884 (half year)...	97,661	.....	45,565	1904-5.....	235,921	.....	149,380
1884-85(fiscal year)	205,026	.....	105,993	1905-6.....	210,886	.....	149,661
1885-86.....	174,225	.....	88,960	1906-7.....	210,107	.....	153,591
1886-87.....	216,562	.....	98,552	1907-8.....	299,659	.....	237,182
1887-88.....	249,665	.....	102,863	1908-9.....	245,187	.....	198,054
1888-89.....	374,843	.....	149,618	1909-10.....	228,804	59,403	179,163
1889-90.....	274,324	.....	120,894	1910-11.....	207,010	151,112	167,085
1890-91.....	286,426	.....	111,669	1911-12.....	172,182	281,887	143,134
1891-92.....	269,825	.....	114,817	1912-13.....	173,858	319,806	142,420
1892-93.....	319,930	.....	174,188	1913-14.....	146,533	329,381	102,645
1893-94.....	195,748	.....	103,910	1914-15.....	133,202	321,712	40,324
1894-95.....	201,744	.....	105,658	1915-16.....	146,956	381,228	48,517
1895-96.....	180,505	.....	103,650	1916-17.....	161,700	407,025	86,335
1896-97.....	229,606	.....	115,709	1917-18.....	161,298	401,100	67,224
1897-98.....	177,254	.....	99,273	1918-19.....	266,532	132,859	101,504
1898-99.....	192,471	.....	116,912	1919-20.....	250,982	422,984	86,013
1899-1900.....	225,440	.....	133,147	Total.....	8,568,244	3,199,497	4,922,009
1900-1.....	216,556	.....	151,563				

¹ Building open only three months of the year.

PUBLICATIONS.

The publications of the year comprised 9 volumes and 42 separate papers. The former consisted of the Annual Report of the Museum for 1919; volumes 54, 55, and 56 of the Proceedings; volume 21 of Contributions from the National Herbarium, Bulletins Nos. 106 (Text), 107 and 108, and a very small edition of Bulletin No. 103.

Of the 42 papers issued in separate form one was part of volume 1, and one of volume 2, of Bulletin 100; one part of Bulletin 103; four parts of volume 20, and two of volume 22, "Contributions from the United States National Herbarium"; while one was from volume 55, 16 from volume 56, and 16 from volume 57 of the Proceedings. A brief guide to the Natural History Building was also issued.

In addition to the Museum publications, many contributions based on material in its collections were printed by other bureaus of the Government. All of the publications above referred to are cited in the bibliography forming part of this report. The editorial office, besides supervising the printing of the Museum publications, also has charge of all miscellaneous printing and binding.

The distribution of volumes and separates to libraries and individuals on the regular mailing lists aggregated 67,382 copies, in addition to which some 14,554 copies of the publications of last and previous years were supplied in response to special applications.

LIBRARY.

While there were no exceptional pieces contributed to the library, there was a collection of special importance—the personal library of Dr. Charles D. Walcott. The intimate connection of Dr. Walcott with the paleontological collections of the Museum as head of that division and later as Secretary of the Smithsonian Institution, makes the sectional libraries of vertebrate and invertebrate paleontology of the Museum difficult of duplication. The interest of Dr. W. H. Dall in books for the sectional library of mollusks has continued, the number of titles added being 310. Valuable material has been contributed also by Maj. Gen. John R. Brooke, U. S. Army, Dr. A. G. Bøving, Dr. F. H. Knowlton, Dr. J. M. Aldrich, Dr. W. H. Holmes, Mr. W. R. Maxon, Dr. O. P. Hay, Dr. Mary J. Rathbun, Dr. C. W. Richmond, Mr. William Schaus, Mr. A. H. Clark, Dr. Walter Hough, Mr. A. N. Caudell, and the late Frederick Knab.

Owing to the increased cost of binding, the library's funds allotted for that purpose were exhausted in January, and it has been possible to send to the Government bindery only 737 books, as compared with 1,322 for the previous fiscal year and 1,706 for the year preceding. With a constantly increasing supply of volumes, and many remaining still unbound, an increased allotment is needed, in order that the important and valuable series in the Museum may be properly preserved.

The increment, largely obtained through gift and exchange, amounted to 3,513 volumes, including 1,932 completed volumes and 1,581 pamphlets. There are now in the Library 145,307 books, of which 56,617 are bound volumes and 88,690 pamphlets and unbound papers.

MEETINGS AND CONGRESSES.

The auditorium and committee rooms of the Museum were utilized, as usual, for meetings and lectures by Governmental, scientific and other educational organizations.

The U. S. Department of Agriculture availed itself freely of the facilities. The Department held a meeting of fertilizer manufacturers in rooms 42-3 on October 6 and 7, 1919, in connection with an investigation of fertilizer prices. States Relations Service had the use of the auditorium on several forenoons,—on October 6 for a meeting of the employees of that Service, at which Dr. A. C. True spoke of the Service's activities; on November 20, for showing a series of motion pictures; on February 3, 1920, for showing a series of slides and a reel relating to its activities, and again on March 30, for a meeting of its employees. The Service also occupied rooms

42-3 and 44 from June 15 to 22 for a conference of its farm management demonstrators from all parts of the country. The Potomac Garden Club, organized under the auspices of the States Relations Service, held its annual meeting and election of officers in the auditorium on the evening of January 24, 1920. The Bureau of Plant Industry held a phytopathological seminar in the hall on the morning of January 29, and the Federal Horticultural Board occupied it for morning and afternoon sessions on April 6, and rooms 42-3 for a morning session next day, in a public hearing to consider the advisability of quarantining the States of Texas and Louisiana on account of the pink bollworm of cotton.

The War Department used the auditorium on the afternoon of May 28, 1920, for the closing exercises of the Army Medical School, session 1919-1920, with an address by the Secretary of War, Hon. Newton D. Baker, and the presentation of diplomas and medals.

Music is more and more becoming a feature in the museums of this country, and, while the National Museum possesses a good series of musical instruments, particularly representative of the pianoforte, it has little opportunity to further the interpretation of rhythm and harmony. It therefore welcomed the use of the auditorium on the evening of January 31 for an official musical entertainment by the United States Marine Corps, when "Roving Marines" was presented, illustrating the work of a recruiting and publicity party of the U. S. Marine Corps.

The fourth Hamilton Fund lecture was delivered in the hall on the evening of April 13, by the Rev. Dr. Charles E. Jefferson, the pastor of the Broadway Tabernacle Church, New York City, who, under the title "The Old Order and the New," discussed the present world-wide unrest and means for combating it. By request of James Hamilton, of Carlisle, Pennsylvania, the Smithsonian Institution received in 1874 a small sum, known as the Hamilton Fund, the income of which is appropriated from time to time for a contribution, paper or lecture on a scientific or useful subject.

Another timely lecture was that under the auspices of the National Research Council on February 6, by Dr. John J. Carty, Vice President of the American Telephone and Telegraph Co., on the wireless telephone, illustrated by talking motion pictures.

The municipal government too benefited by the Museum's facilities. The District of Columbia Minimum Wage Board created by act of Congress approved September 17, 1918, "to protect the women and minors of the District from conditions detrimental to their health and morals resulting from wages which are inadequate to maintain decent standards of living," had the hall on the evening of November 20 to bring together the women employed in the hotels,

restaurants, apartment houses, and hospitals of Washington, that they might select representatives to serve on the minimum wage conference for this industry. The auditorium was also placed at the disposal of Mrs. Susan Sipe Alburtis, in charge of nature study and gardening courses in the Public Schools of the District of Columbia, for lantern slide talks on trees, birds and gardens before children of the public schools of south Washington, on March 3, 4 and 8, there being no public school auditorium in the vicinity.

The annual meeting of the National Academy of Sciences was held in the Museum on April 26, 27, and 28, the auditorium being used for the presentation of scientific papers in open session, and the committee rooms for the business sessions. The William Ellery Hale lectures on the evening of April 26, by Mr. Harlow Shapley of Mount Wilson Solar Observatory and Mr. Heber D. Curtis of Lick Observatory, took the form of a discussion on "The Scale of the Universe" and was exceedingly interesting. A *conversazione* followed in the National Gallery of Art and the adjoining halls of the Museum.

Other speakers before the Academy and their subjects included: John M. Clarke: Conservation of natural resources as a proper function of the National Academy; Raymond Pearl: On the rate of growth of the population of the United States since 1790 and its mathematical expression; Franz Boas: Growth and development as determined by environmental influences; Charles B. Davenport: Plural births in man; Samuel J. Meltzer: The importance of the presence of both sympathetic superior cervical ganglia to the maintenance of life, and their possible relations to respiratory diseases; Charles D. Walcott: Structure of Marrella and allied Middle Cambrian crustaceans; James R. Angell: The National Research Council; Robert M. Yerkes: A psychological study of the medical officers in the Army; Robert W. Wood: Spectroscopic phenomena of very long vacuum tubes; L. T. E. Thompson, C. N. Hickman, and N. Riffolt: The measurement of small time intervals and some appliances, principally ballistic; Robert A. Millikan: The effect of molecular structure upon the reflection of molecules from the surface of liquids and solids; Arthur G. Webster: (1) The Springfield rifle and the Leduc formulae, (2) Some new methods in internal ballistics of the Springfield rifle, (3) Preliminary measurements on the pressures in the "Onde de Choc," and (4) On the connection of the specific heats with the equation of state of gas; George E. Hale: The 100-inch Hooker telescope of the Mount Wilson Observatory; A. A. Michelson: (1) The vertical interferometer, (2) Preliminary tests in an attempt to measure the diameter of the stars, and (3) A modification of the Foucault method adapted to long distance measure-

ment of the velocity of light; Edwin H. Hall: Thermal conductivity of metals; C. Hart Merriam: Distribution and villages of the Indian tribes of the Klamath River region, California; John C. Merriam: Significance of correlation in function between the dentition and skeleton of the Sabre-tooth tiger; George H. Parker: On the colonial nervous system of Renilla; Douglas H. Campbell: The genus Botrychium and its relationships; Frederick V. Coville: The influence of cold in stimulating the growth of plants; Thomas B. Osborne and Lafayette B. Mendel: Some common foods as sources of vitamins; Lawrence J. Henderson: The physico-chemical properties of haemoglobin; William A. Noyes and George H. Coleman: The direct combination of nitrogen and chlorine; Gilbert N. Lewis: Valance and chemical affinity; William F. Durand: Shock or water ram in pipe lines with imperfect reflection at the discharge end and including the effect of friction and nonuniform change of valve opening; Leonard E. Dickson: Recent notable progress in the theory of numbers; Edward Kasner: Geodesics and relativity; F. E. Pernot: The use of alternating currents for submarine cable transmission; George O. Squier: Multiplex telephony and telegraphy over open-circuit bare wires laid in the earth or sea; Lyman J. Briggs: The air resistance of spheres; Robert H. Goddard: The possibilities of the rocket in weather forecasting; H. Fielding Reid: The distribution of land and water on the earth; Waldemar Lindgren: The alteration of limestones in contact-metamorphism; Henry Norris Russell: Notes on the internal constitution of the stars; Charles Greeley Abbot: New observations on the variability of the sun.

The following papers were read by title only: Raymond Pearl: On a single numerical index of the age distribution of a population; Edward S. Dana: Biographical memoir of George Jarvis Brush; Mabel Weil: Reports on the researches of the late Prof. C. C. Trowbridge (*a*) Auroras and magnetic disturbances (*b*) Auroral phenomena and the meteor train zone (*c*) An investigation of meteor trains (*d*) Theories on the nature of meteor trains.

On May 17, 18 and 19, 1920, the American Association of Museums held its fifteenth annual meeting in the National Museum. This association had its origin in a meeting in the Museum in 1905, when the directors of nine prominent American museums gathered here. It was formally organized in New York City the following year, and with a constantly increasing membership and well directed efforts it has come to be recognized as an exceedingly important factor in the advancement and direction of the museum movement throughout the country. The meeting this spring afforded opportunity to learn of the changes and progress made during the strenuous years since 1916, when the Association last met in Washington,

including its corporation this year under the laws of the District of Columbia. Aside from its business sessions the program consisted of:

Address of welcome, by Dr. Charles D. Walcott, Secretary of the Smithsonian Institution and Keeper *ex officio* of the United States National Museum.

Response, by Prof. Paul M. Rea, President of the Association.

Children's work at the Metropolitan Museum of Art, by Miss Anna Curtis Chandler, Museum Instructor, Metropolitan Museum of Art.

Demonstration story hour for children, by Miss Chandler and Miss Margaret Tucker, Curator, Cambridge Museum for Children—before children from the Washington Public Schools.

Discussion of educational methods in museums, by Miss Anna B. Gallup, Curator, Children's Museum, Brooklyn Institute of Arts and Sciences.

Basilica or temple, by Benjamin Ives Gilman, Secretary, Museum of Fine Arts, Boston.

New groups in the Illinois State Museum, by A. R. Crook, Chief, Illinois State Museum.

Some principles of group construction, by Laurence V. Coleman, Chief, Department of Preparation and Exhibits, American Museum of Natural History. Discussion led by Roy W. Miner.

Microscopic forms in museum groups, by Roy W. Miner, Associate Curator, Department of Invertebrate Zoology, American Museum of Natural History.

Habitat groups at the Fairbanks Museum, by Miss Inez Addie Howe, Botanist and Instructor, Fairbanks Museum, St. Johnsbury, Vt.

The American Museum and Temple of Music, by Miss Alice A. Driggs, Founder, Brooklyn, N. Y.

Mounting geological specimens with sulphur, by Chester A. Reeds, Associate Curator of Invertebrate Paleontology, American Museum of Natural History. Discussion led by Dr. Edmund Otis Hovey.

Exhibit furniture used by the Department of Agriculture at Fairs and Expositions, by Frank Lamson Scribner, Expert on Exhibits, U. S. Department of Agriculture.

A microscopic view of the blood circulation (motion pictures), by Charles F. Herm, Cinema biologist and photomicroscopist, of Harrison, N. Y. Discussion led by Charles R. Toothaker.

A museum of fine arts in Utopia, by Huger Elliott, Supervisor of Educational Work, Museum of Fine Arts, Boston. Discussion led by Clyde H. Burroughs.

A museum for children, by Dr. Charles J. Douglas, Chairman of the Board of Trustees, Children's Museum of Boston. Discussion led by Miss Delia I. Griffin.

The small historical museum, by Dr. Frank H. Severance, Secretary and Treasurer, Buffalo Historical Society. Discussion led by Dr. Melvin R. Gilmore.

A living outdoor museum, by Dr. Melvin R. Gilmore, Curator, State Historical Society, Bismark, N. D. Discussion led by W. C. Mills.

A city museum, its history and development, by Edward D. Putnam, Curator, Rochester Municipal Museum, Rochester, N. Y. Discussion led by Dr. Frank H. Severance.

The exhibition series of birds and mammals in the United States National Museum by Dr. R. W. Shufeldt, Washington, D. C.

The members of the Museums Association inspected the adjacent building for the Freer Collections, on the afternoon of May 18, under the guidance of Mr. W. deC. Ravenel, Administrative Assistant to

the Secretary, in Charge of the National Museum. The building was sufficiently complete to give the visitors an idea of the extent of the generous gift of the late Charles L. Freer, who donated his art collections to the nation and then provided this structure, the latest thing in gallery planning, to house them. Opportunity was also afforded for the inspection of the various laboratories and work shops of the Museum, as well as of the methods used for preservation of prints and manuscripts at the Library of Congress. The meeting closed with an evening round table session at Great Falls of the Potomac.

The Museum auditorium, auditorium lobby, and committee rooms 42-3 were occupied from October 28 to November 6 by the First International Congress of Working Women, a unique convention of women from all parts of the world. As the International Labor Congress summoned by the President of the United States in the autumn of 1919 included on its program items intimately concerning working women, the National Women's Trade Union League of America, representing 600,000 trade unionists, issued a call for this women's congress to meet in Washington immediately preceding the Labor Congress, in the belief that women must now assume new responsibilities and that fellowship and conference together could alone guarantee mutual faith and joint action, which should make for universal industrial justice.

The Delaware River Ship Builders Council had the auditorium on February 9, 10 and 11, 1920, for a conference of workers in various navy yards and shipyards of the United States, in reference to the Government's shipbuilding and shipping program.

The American Association of Anatomists held its annual meeting in the Museum April 1, 2 and 3, using committee rooms 42-3 for morning and afternoon sessions except the last afternoon session, which was in the auditorium. Rooms 45, 46, and 47 were also placed at the disposal of the Association for demonstration purposes. And the fifth annual meeting of the American Society of Ichthyologists and Herpetologists was called to order in the committee room on May 14, 1920.

The delegates to the annual convention in Washington of the American Pharmaceutical Association, on the occasion of an inspection of the Museum's collections on the morning of May 6, were given a special exhibition in the auditorium of a motion picture film showing scenes in the National Forests, lent by the U. S. Department of Agriculture.

The Southern Sociological Congress had the hall on May 10, 11, 12, and 13 for morning and afternoon sessions of its ninth annual convention, the other sessions of which were held elsewhere. This non-partisan and non-sectarian movement is devoted entirely to the

work of human uplift and social service, its motto being "Every citizen as patriotic in community service as the soldier was in war service."

The Southern Society of Washington arranged a lyceum in the auditorium on five Wednesday evenings, open to the public as well as to its members. On February 4, Hon. Philander P. Claxton, Commissioner of Education, gave an interesting talk on a national system of education. On February 18, the Hon. J. Thomas Heflin of Alabama discussed preparedness and some of the important problems of the day, including the Peace Treaty and the League of Nations. On March 3 Senator Duncan U. Fletcher of Florida delivered an inspiring address on some present peace problems, which was followed by a musical program. On March 17, after a brief business session, Mr. Claude N. Bennett, past President of the Society, spoke on the Southern Renaissance, or the South of today and tomorrow, illustrated with pictures showing conditions of the past and the present. The last lecture, on March 31, was by Mr. John Barrett, Director of the Pan American Union, his subjects being the influence of women in the past and future, and the Pan American Union, what it means to the world and what it has accomplished for the United States and the Western Hemisphere.

The Anthropological Society of Washington, as usual, used the Museum for its gatherings of the 1919-1920 season, holding 9 meetings between October 7 and April 28, all in the committee room except that on the afternoon of February 3, when the larger assembly room was required for an illustrated lecture by Mr. Sylvanus Griswold Morley on the foremost civilization of ancient America. The subjects discussed in other meetings included field experiences by Messrs. J. Walter Fewkes, J. P. Harrington, J. N. B. Hewitt, Walter Hough, A. Hrdlička, N. M. Judd, T. Michelson, J. R. Swanton, and F. La Flesche; and lectures by Dr. J. Walter Fewkes on the genesis of cliff-dwellings, by Mr. Gerard Fowke on the explorations of caves in the Ozark region, Missouri, and by Mr. J. A. Jeançon on antiquities of the Jemez Plateau, New Mexico. The auditorium was also used, on the evening of March 6, for a lecture by Dr. W. H. R. Rivers, of Cambridge, England, on "Ethnology: Its Aims and Needs," under the joint auspices of the Anthropological Society and the Washington Academy of Sciences; and on the afternoon of April 16 for a lecture by Sir Bertram Windle, the eminent English anthropologist, on the megalithic monuments of Great Britain, under the auspices of the Washington Society of the Archaeological Institute of America.

The Audubon Society of the District of Columbia had the auditorium on two evenings—on January 27, 1920, for its annual meeting with an illustrated lecture by Dr. Paul Bartsch on the birds of

the District of Columbia, and on March 20 for a lecture by Dr. William L. Finley, State Ornithologist of Oregon, on wild game, illustrated by motion pictures. On January 28 the Wild Flower Preservation Society met in the committee room.

"The Cost of Living from the Consumer's Standpoint" was the subject of an evening meeting of the Consumers' League of the District of Columbia in the hall on September 6, with addresses by Hon. William B. Colver, of the Federal Trade Commission, and Mrs. Florence Kelley, General Secretary of the League.

Under the committee for "Be Kind to Animals Week" Mr. Ernest Harold Baines gave an illustrated lecture in the auditorium on April 14 on the part played by the animals in the war, and room 422 was utilized on the morning of May 11 for organizing a "Good to Animals Society."

The U. S. S. Jacob Jones Post No. 2 of the American Legion celebrated its first anniversary with addresses by the Secretary of the Navy, Hon. Josephus Daniels, Hon. James A. Frear, and Col. E. Lester Jones, in the auditorium on the evening of May 22, 1920.

Prizes for the Evening Star Army Enlistment Essays were awarded in the auditorium on the evening of May 8, instead of in the Smithsonian Park as first planned, because of inclement weather.

The auditorium was also used by the Washington Society of Engineers on the evening of November 19, 1919, for a general discussion of the preliminary report of Engineering Council's Committee on Classification and Compensation of Government Engineers, to which all engineers in Washington were invited, and by the Washington section of the American Society of Mechanical Engineers on the evening of January 29, 1920.

The work of the Congressional Joint Commission on Reclassification of Salaries created great activity among the civil employees of the Government in the District of Columbia, and the Museum auditorium accordingly afforded a meeting place for the Scientific-Technical Section of the Federal Employees Union No. 2 on September 23, to complete the organization of the section by the adoption of a constitution and by-laws and the election of officers; on November 10 for a symposium in which Dr. E. A. Goldenweiser and Mr. Basil Manley discussed the principles involved in the fixing of salaries; on November 25 for an address by Prof. Irving Fisher, of Yale University, on the purchasing power of salaries; and on March 11 for addresses by Drs. C. E. McClung and H. M. Howe of the National Research Council on the work being done by that organization. The Smithsonian Branch of the Federal Employees Union No. 2 occupied room 42-3 on October 14 for its annual meeting, and

for business meetings on July 19, November 3, November 10, and March 5.

Various other groups of civil employees met in the Museum for organizing, preparing data, and otherwise helping toward the reclassification of the government forces in Washington, the auditorium being so used by federal employees interested in the bookkeeping, accounting and auditing service on November 21; by the clerical force of the Department of Agriculture on November 25 and December 3; and by the employees of the Bureau of Plant Industry of that Department on November 15. Committee room 42-3 was likewise occupied by the federal photographers on November 11; by the marine and stationary operating engineers on November 28, December 4, March 24 and April 14; by the sub-committee on personnel of the Reclassification Committee on November 22 and December 3; and by members of the Museum's scientific staff on November 24 and December 13.

Room 42-3 was also used for meetings of the Association of Appointment Clerks on June 9; the Smithsonian Auxiliary of the District of Columbia Chapter of the American Red Cross on June 11, and for the annual meeting of the Smithsonian Relief Association on October 27.

Armistice Day, November 11, 1919, was duly celebrated by a gathering of all the officers and employees of the Smithsonian and its bureaus in the Museum auditorium, where at 11:11 a. m. all joined in singing "The Star Spangled Banner," under the direction of Mr. J. G. Traylor, and saluting the flag, led by Mr. H. W. Dorsey.

In compliance with a request from Commissioner Brownlow, Secretary Walcott authorized the use of the south steps of the Natural History Building for staging a part of the festival by the Fourth of July Peace Celebration Committee on the afternoon of July 4, 1919. The program included a series of tableaux depicting the negro race from its origin down to the present time. About fifty persons represented the characters in this part of the festival, and the domestic, mechanical, and musical instruments needed to complete the pictures in the different groups were loaned by the Museum.

SPECIAL EXHIBITIONS.

Under the auspices of the Arts Club of Washington and in the interest of the National Peace Carillon movement, a special exhibition of illustrations of the famous bell towers of the world was held in rooms 46 and 47 of the Natural History Building from October 2 to 31 inclusive. The Arts Club has undertaken to enlist the cooperation of all lovers of freedom in furthering a plan to erect at the nation's

capital a national peace tower and the largest and finest carillon that the most expert bell founders of the world can provide, as a tribute to the heroic resistance of Belgium, in recollection of our dead and those of our allies and in enduring commemoration of the great victory won over imperialism.

This exhibition consisted of about two hundred and fifty items, all told, including the Jan Baes collection of Belgian Towers, fifty in number, and photographs of Belgian scenes and of Spanish towers, all loaned by the Library of Congress; twenty-four sketches, etchings and prints intimately connected with the carillons of Belgium and Holland, loaned by Mr. William Gorham Rice; twenty-six large etchings and prints loaned by Mr. S. J. Venable; thirteen sketches by Mr. L. M. Leisenring; a number of tower pictures loaned by Trinity Church, and a large number of photographs and small prints loaned by Dr. Erwin F. Smith. Included in the exhibiton were also a considerable number of photographs of modern chime and carillon bells, loaned by Mr. J. Marion Shull, and a photostat reproduction contributed by Mr. Grant Leet, showing the programs of the Denyn concerts at Malines during the summer of 1919.

An exhibiton of drawings, photographs and paintings illustrating the activities of the Air Service of the United States Army at the front and in America was opened to the public at 2.30 p. m. on October 4, 1919, and closed at 4.30 p. m. on October 29, 1919. The eastern portion of the west north range, ground floor, Natural History Building, was assigned to Captain Otho Cushing, who was in charge of the exhibit, and the pictures were hung on the south wall of the range and attached to floor screens.

* ORGANIZATION AND STAFF.

The Congressional appropriations for the maintenance of the Museum remaining stationary for many years has prevented any general advancement of salaries, though greatly needed, and the Museum has not only been unable to add even a few of the experts needed to assist in the classification of specimens in the recently organized department of arts and industries as well as in the long-established natural history departments, but has lost many of its former trained workers. The crowded conditions and lack of sufficient experts in the division of insects, for instance, has recently led the Entomological Society of America and the American Association of Economic Entomologists to appoint a committee to promote the adequate development of the National Museum so far as the collection of insects are concerned. And what is true as to conditions in the division of insects is equally true elsewhere throughout the Museum.

The industrial interests of the country have been and are deeply interested in the proper development of the department of arts and industries, but under present conditions it has been impossible for the Museum to do justice even to one single subject. The object of this department is to bring the industrial interests of the country in direct contact with examples of the best class of workmanship in the various crafts. Its purposes are wholly practical, and already many crafts not only look to the Museum for information but contribute liberally in furnishing material for exhibition, funds for construction of models, etc. Some of the subjects already represented here are textiles, art textiles, medicine, foods, miscellaneous animal and vegetable products, mineral technology, land and aerial transportation, naval architecture, metrology, mechanical transmission of intelligence, mechanical and electrical inventions, firearms, musical instruments, pottery, glass, metal work, and graphic arts, the latter being transferred from the department of anthropology at the close of June 30, 1920.

The available funds of the Museum not being sufficient to provide separate staff officers for each section or division, these various activities have had of necessity to be placed in certain instances under those curators in other lines best qualified to also handle the subjects. Thus, for instance, for administrative purposes only the division of medicine is under the general supervision of Mr. F. L. Lewton, who is the curator of textiles; and Dr. Walter Hough of the department of anthropology, besides looking after the collections of his own particular division of ethnology, gives general oversight to various other collections where there is no paid staff, particularly the art textiles, ceramics, musical instruments, and the period costumes collection.

The sundry civil act for the fiscal year 1921 carries a small appropriation for the National Gallery of Art. For economic reasons the gallery has up to now been administered as an integral part of the Museum, the scientific and administrative staffs of which have cared for the gallery in addition to their own regular Museum duties. This appropriation will permit of the gallery being separated from the Museum on July 1, 1920, and organized as an independent bureau under the Smithsonian Institution, and to it will be transferred the fine art collections of the Museum which have heretofore been administered under the curator of the National Gallery of Art. The gallery will for the present, however, continue to be housed in the Natural History Building of the Museum.

Much is expected of the movement for the reclassification of the salaries of the Government employees in the District of Columbia. The Congressional Joint Commission on Reclassification of Salaries

in March, 1920, reported to Congress the findings on its survey of existing conditions in the executive departments and the independent branches, making recommendations for the betterment of the service generally, which will, of course, affect the Museum.

Toward the close of the fiscal year, Congress passed a civil pension bill, by which an employee of the Government on reaching 70 years of age in the clerical and 65 years in the mechanical service, after serving his country from 15 to 30 years in a civil capacity, can be retired on a small annuity, the amount governed by length of service and by salary during last ten years of service. The act also provides for the retirement, under certain conditions, of employees who have become totally incapacitated for efficient service by reason of disease or injury before reaching the nominal age. The act will become operative in August, 1920, and a deduction of $2\frac{1}{2}$ per cent will be made from the salaries of all Government employees toward the fund for carrying the system into effect.

To facilitate administration, the division of history was separated from the department of anthropology at the close of June 30, 1920, becoming an independent division.

The changes in the staff this year were few. After the death of Mr. Brown, the position of registrar of the Museum was abolished and a reorganization of the work made. The records relating to accessions, to material for examination and report and to distribution of specimens were transferred to the office of correspondence and documents, where the files of the Museum are kept, and the duties of shipping clerk were combined with those of property clerk, Mr. W. A. Knowles being advanced to property and shipping clerk on August 1.

The collections of echinoderms were removed from the division of marine invertebrates. A separate division of echinoderms was established on April 1 and placed in charge of Mr. Austin H. Clark, who was promoted from assistant curator of marine invertebrates to curator of echinoderms. As he had devoted considerable study to the Onychophores, they were included in the new division. On the same date Mr. Waldo L. Schmitt, assistant curator, was advanced to associate curator of marine invertebrates.

Mr. William Schaus' honorary connection with the collections was changed on July 1 from assistant custodian of Lepidoptera to assistant curator of insects, and on December 16, Mr. S. A. Rohwer was appointed custodian of Hymenoptera, succeeding Mr. J. C. Crawford.

Dr. F. N. Blanchard resigned as aid in reptiles and batrachians and Miss Doris M. Cochran was appointed to that position on November 1. In the division of plants Mr. Ellsworth P. Killip served as aid from July 7 under a temporary appointment.

Another resignation was that of Dr. W. T. Schaller, who, as custodian of gems and precious stones, has rendered excellent service in securing much new material for the Museum.

Mr. Carl W. Mitman was advanced on July 1 from assistant curator of mineral technology to curator of mechanical technology and placed in charge of the latter division, which had just been transferred from department of anthropology to that of arts and industries. Mr. R. G. Paine, aid, under temporary detail to mechanical technology returned to the division of American archeology. Other changes here were the honorary appointment of Mr. George W. Spier, of Washington, D. C., as custodian of watches on February 13, 1920, and, near the end of the year, the advancement of the clerk, Miss Barbara E. Bartlett, to the position of aid. Mrs. E. W. Rosson, preparator in the division of textiles, was likewise advanced to aid on April 1.

Besides Mr. Mitman, the division of mineral technology lost by resignation Dr. Joseph E. Pogue, curator, on September 30, and Mr. C. G. Gilbert, curator, on October 31. Mr. Gilbert had served in charge of the division ever since its active establishment June 6, 1913, and the Museum was glad to have him continue a general supervision over it under an honorary appointment as associate curator.

Mr. Loring W. Beeson, photographer, severed his connection with the Museum, being succeeded on June 1 by Mr. Arthur J. Olmsted, by transfer from the Department of Agriculture.

The following having rendered military or naval service to the country returned to duty in the Museum: Mr. W. M. N. Watkins, assistant curator of wood technology, Mr. Emery C. Leonard, aid in botany, Mr. J. C. Robinson, stenographer and typewriter in the office of head curator of anthropology, Mr. W. W. Torbert, clerk in the Administrative Assistant's office, Messrs. Fred Cook and W. D. Patterson, watchmen, and Mr. J. R. Sirlouis, messenger.

The Museum lost by death during the year Dr. James M. Flint, associate in medicine, and Mr. S. C. Brown, registrar.

James Milton Flint was born in Hillsborough, New Hampshire, on February 7, 1838. His early education was received at the common schools of his native town and at the academy in Pembroke. Choosing medicine as a profession, he entered the Harvard Medical School where he was graduated with the degree of M. D. in 1860. The advent of the Civil War offered unusual opportunities to a young surgeon to acquire experience, and young Flint, quick to appreciate the advantage to add to his technical knowledge, entered the service of the United States Navy in 1862, as assistant surgeon. Thereafter he practiced his profession in the Navy until 1900, pass-

ing through the various grades until he reached that of Medical Director in 1897, and on his retirement, owing to service in the Civil War, receiving the additional rank of Rear-Admiral.

During the years 1884 to 1889 he was assigned to duty with the U. S. Fish Commission and coming under the influence of Dr. G. Brown Goode, he was led to study of Foraminifera and in order that the results of his investigations might be properly studied and be given to the world, he was assigned to the National Museum as curator in charge of the division of medicine during the three different periods of shore duty.

These years were fruitful of good work well done, both in the way of organizing, collecting, and installing the collections in the division of which he had charge, and also in the study of that group in natural history with which his name will always be honorably connected.

To the literature of science he contributed "Recent Foraminifera: A descriptive catalogue of specimens dredged by the U. S. Fish Commission steamer *Albatross*" (1899), and "A Contribution to the Oceanography of the Pacific" (1905) compiled from data collected by the U. S. Steamer *Nero* while engaged in the survey of a route for a trans-Pacific cable, both of which were published by the U. S. National Museum.

After his retirement from active duty in the Navy he continued his connection with the Museum for some years as honorary curator, but only as failing health came to him was he willing to relinquish the duties of his work to accept the honorary relation of associate in medicine.

Doctor Flint was a member of the Metropolitan, Cosmos, Army and Navy, and Chevy Chase Clubs, and testified to the fighting qualities of his New England ancestors by membership in the societies of Colonial Wars and Sons of the American Revolution, while in his own right he was a member of the Loyal Legion.

After a lingering illness, he died in Washington City on November 21, 1919.

Mr. Stephen C. Brown died at his home in Washington, on July 11, 1919, after 43 years of service to the Museum. Mr. Brown was born at Danville, N. Y., October 19, 1844. He enlisted in Company B, 136th New York Volunteer Infantry, early in the Civil War and served until its close. For some years thereafter, he resided in Cleveland, Ohio, but joined the Smithsonian staff at the time of the preparation of the Government exhibition at the Philadelphia Centennial in 1876. At the close of this work he was appointed an assistant to Dr. H. C. Yarrow, who was in charge of the division of reptiles; and in 1886 was made registrar for the National Museum, a position which he continued to hold with unexcelled efficiency to

the last. He was a member of the Burnside Post of the Grand Army of the Republic and of the Sons of the American Revolution. Mr. Brown's death removes one more from the rapidly diminishing number of those connected with the early development of the National Museum.

IMMEDIATE NEEDS OF MUSEUM.

The most pressing needs of the Museum are those for additional space for the ever-increasing collections and additional funds for their classification and maintenance. Another year has only made more acute these needs. Preliminary steps are being taken looking to securing the erection of another building to house the great historical collections of the Museum and the collections of the National Gallery of Art. It will nevertheless be some years before relief can be hoped for in that direction even under the most favorable circumstances. The appropriations for the maintenance of the Museum for 1921 remain practically the same as those for 1920. Never were there so many openings for advancement in industrial as well as scientific lines, but under existing conditions the Museum is helpless. It is not only prevented from developing collections in the various directions now offering exceptional opportunities, but it carries forward existing work only by exercising the strictest economy.

DETAILED REPORTS ON THE COLLECTIONS.

REPORT ON THE DEPARTMENT OF ANTHROPOLOGY,

By W. H. HOLMES, *Head Curator.*

The varied activities of the department of anthropology for the year were continued along lines corresponding closely to those of the preceding year, although at the beginning of the year an important change was made in the scope of the field covered, the division of mechanical technology being separated from the department and placed under separate control, as the divisions of medicine and textiles had been separated previously. This change was made for the reason that, although the human activities and the products of these activities come within the scope of anthropology, the field had become too wide for convenient museum treatment. The subject matter of technology, although embracing the primitive stages of the mechanic arts, lies chiefly in the fast expanding and highly specialized field of the age of steam and electricity. Similarly, at the close of the present fiscal year the division of American history is separated from the department of anthropology, under which it came into existence but with which it has no necessary connection, and constituted an independent division. The historical collections have multiplied greatly in recent years and during the present year have increased as a result of the World War to such an extent that the erection of a separate building for their accommodation seems an imperative duty of the Government. It may be further noted that at the close of the present year the division of graphic arts, allied until now with anthropology, has been assigned to the department of arts and industries, its museum field dealing with the practice of the graphic arts in their highly developed mechanical stages. A further change at the close of the year affects the personnel of the department, the head curator having been appointed director of the National Gallery of Art, now a coordinate unit of the Smithsonian group, is thus separated from anthropology, and at the same time the recorder of the department is transferred to the corresponding position in the National Gallery. The department of anthropology at the beginning of the fiscal year 1920-21 thus comprises four principal divisions only: ethnology, American (including religions), each being in charge of an independent curator. archeology, physical anthropology, and Old World archeology (including Ceramics, art textiles, musical instruments, and historical costumes are cared for by the curator of ethnology. Minor changes in the staff

of the department are recorded in the reports of the several divisions which follow.

Additions to the department collections have been numerous and important, though not greatly surpassing those of the preceding year. They comprise 392 accessions with a total of 23,592 specimens, of which 8,338 are loans or deposits, summarized as follows: division of ethnology, 1,609 specimens; section of musical instruments, 88 specimens; section of ceramics, 110 specimens; division of physical anthropology, 293 specimens; division of American archeology, 3,000 specimens; division of Old World archeology, 906 specimens; division of history, 16,882 specimens; historical costumes collections, 217 specimens; division of graphic arts, 472 specimens; section of photography, 15 specimens. There were also received from various sources for examination and report 83 lots of specimens, diversified in character.

As in previous years, the department is greatly indebted to the Bureau of American Ethnology, which is the anthropological field arm of the Institution. Its researches extend to the tribes and antiquities of the entire country, the collections made finding their final resting place in the department of anthropology of the Museum. Field work by members of the department staff has not, however, been neglected. The head curator has uniformly insisted that the staff can not be expected to keep apace with the anthropological departments of other museums without a fair share of field research. During the year the curator of physical anthropology visited China, where he was received with much enthusiasm by the Peking Union Medical College and the scientific community generally, and where he organized his branch of science, giving also a course of lectures. The curator of ethnology spent the month of June among the Hopi Indians of Arizona; and the curator of American archeology, under the auspices of the Bureau of American Ethnology, made interesting explorations in northern Arizona and Utah during the months of May and June.

As in the reports of previous years, the head curator finds it convenient to present the activities of the various divisions and sections separately, following in each case the order of topics required by the administrative instructions.

The gifts sent out from the department number 154, and the exchanges 164. There were 64 specimens sent out as loans for scientific study and special exhibition.

The total number of specimens in the department, including all duplicates, is 797,272.

Ethnology.—The division has continued under the direction of Dr. Walter Hough, curator. Aside from the ordinary scope of ethnology, Doctor Hough cared for the sections of ceramics, musical instru-

ments, art textiles, and period costumes. Additions to the collections compare favorably with those of preceding years, although the limited fund available for purchase has made the acquirement of important collections by this means impossible. The World War also has appreciably interfered with the usual current of accessions. However, some valuable material collected during the period of military occupation of the Philippines was received, and mention may be made of specimens procured by General Jacob Kline, U. S. A., and presented by his daughters, Mrs. Thomas F. Dwyer and Miss Kline; a number of baskets, hats, etc., collected by Major General Joseph C. Breckenridge, U. S. A., and presented by him, through his daughter, Miss Lucy H. Breckenridge, and interesting weapons presented by the late Lieutenant Colonel Duncan Elliott, U. S. A. A collection of baskets, 265 in number, especially rich in Channel and other California Mission Indian and Navaho specimens, was received as a gift from Miss Ella F. Hubby, of Pasadena, California. There were acquired by the bequest of Miss Elizabeth S. Stevens several hundred specimens of silver, pewter, brass, pottery, etc. The collections also include many religious objects and small objects of art, which have been assigned to the proper divisions. It is observed that accessions from the North American Indians are becoming increasingly rare and few accessions other than baskets were received.

Much attention was given to the work of preparing and installing collections. Numerous additions were made and the number of previous installations were perfected. The collections illustrating the progress of illumination were set up for the first time in their entirety, and the rare California mission baskets of the Hubby collection placed on exhibition. A lay figure group of the largest size representing Kiowa children at play was completed and placed on exhibition, and another figure was added to the group of Zuni Indian potters.

The collections as a whole are in excellent condition. During the year the glass in the exhibition cases was cleaned and needed rearrangement of the collections made at the same time, and improvement was made in the preservation of storage specimens by the addition of dust-proof cases in the attic.

The curator began and brought near to completion papers on the races of man as illustrated by the lay figure groups in the Museum and on the synoptic series illustrating the history of invention, both studies answering a widespread demand for the educational institutions of the United States.

The exhibits of the division are rapidly becoming congested through the introduction in the space originally assigned to ethnology exhibits of Old World archeology and religions and of the National

Gallery, and the necessity of a building to house the latter collections becomes more and more apparent.

American Archeology.—This division was under the direction of Mr. Neil M. Judd, curator, as heretofore; and Mr. R. G. Paine was transferred to the division as aid from the division of mechanical technology.

The accessions for the year show a slight increase in number and value over the preceding year, the increase being due largely to contributions transferred from the Bureau of American Ethnology. Among the most noteworthy of the additions from this source are some 300 objects of archeological interest from Arizona, Utah and Colorado, collected by Dr. Walter Hough during the previous field season; 165 specimens of kindred character collected in Texas by Dr. J. W. Fewkes and Prof. J. E. Pearce; 748 implements of bone, stone and shell from caves in Missouri, collected by Gerard Fowke; 5 sculptured stones from Mexico, thought to be of Huastecan origin, the gift to the Bureau of Mr. John M. Muir; a number (451) of choice archeological specimens from New Mexico, transferred by the Bureau of American Ethnology. Under the direction of the Bureau of American Ethnology, Mr. Judd explored several caves in Cottonwood Canyon, Kane County, Utah, securing collections (257 specimens) of considerable interest. Among this material were 11 ears of corn, which in size and present condition exceed any similar specimens known to have come from pre-historic ruins of the Southwest. Mr. Gerard Fowke made investigations of aboriginal remains in the caverns of the Ozark region, Missouri. This work was conducted in the main under the auspices of the Bureau of American Ethnology and yielded excellent results. In cooperation with the Indian Office in 1918 the curator undertook the exploration of the pre-historic ruins comprising the Navaho National Monument, Arizona, but owing to accidents and delays of transportation during the war the collections made were not all received at the Museum until last autumn; they are among the most important additions added during recent years.

Work on the collections consisted chiefly in bringing up to date the identification and record of collections acquired during previous years, the sickness and death of Mr. E. P. Upham, formerly in charge, having interfered greatly with that work. The collections are not as yet in wholly satisfactory condition. In the office the curator continued his study of the archeological remains from the region north and west of the Rio Colorado in Arizona and Utah, but this work was coordinated with the important work of identifying, recording, and caring for collections previously made. During March and April Mr. J. A. Jeancon was engaged in the office on the detailed examination of archeological material gathered by

him in 1919 while in charge of the Otto T. Mallery Southwestern Expedition. His report, prepared during this period, is to be published by the Bureau of American Ethnology.

Old World Archeology.—Additions to the collections of the division are more numerous than those of the preceding year, and nearly all are by their intrinsic and artistic value, or on account of their historical and archeological significance, valuable additions to the Museum's collections. Mention may be made of the following: 93 specimens, consisting in the main of objects of Christian and Buddhist religious art in wood, copper, bronze and silver, part of the bequest of Miss Elizabeth S. Stevens; a collection of ancient coins ranging in date from the Roman Republican and Imperial periods down to Papal times, gift of Captain Clarence L. Wiener; 104 casts of engraved antique gems, gift of Dr. William H. Dall; 124 casts of 32 Oriental seals, made in the Museum from originals owned by Mrs. Talcott Williams. A very interesting supplement to the "Jefferson Bible" in the Museum's collection of Bibles is the addition of two English copies of the New Testament, printed in Philadelphia in 1804, from which Jefferson cut out the English version of "The Life and Morals of Jesus of Nazareth." These are the very copies to which Jefferson refers in a letter of January 29, 1804, to Doctor Priestley: "I had sent to Philadelphia to get two Testaments (Greek) of the same edition, and two English, with a design to cut out the morsels of morality and paste them on the leaves of book." Gift of Miss Bertha Cohen and her nieces.

The prehistoric collections of former years from Japan, Korea, Australasia, India, and Cambodia have been labeled, thus bringing the installation of the section of archeology up to date; and numerous additions were made to the Buddhistic, Egyptian and Jewish exhibits. A study of the collection of Buddhist religious art was continued and a lecture on the Antiquities of the Bible was prepared for the Young Men's Christian Association.

Physical Anthropology.—Changes in the organization of the division during the year are as follows: Mr. George A. Miller, scientific aid, resigned to take up more remunerative work, and Miss Emma Boller, stenographer, was obliged on account of illness to take prolonged leave.

The year has been about equal to last year in number of entries as well as in scientific value of the collections. The more important accessions are: 73 skeletons or parts of skeletons from the prehistoric pueblo of Hawikuh, New Mexico, gift of the Museum of the American Indian, Heye Foundation, collected by Mr. F. W. Hodge; skeletal remains of approximately 50 individuals from Central Tennessee and Kentucky, partly a loan and partly a gift from Mr. W. E. Myer; skeletal remains of 28 individuals collected in the Ozark

caves, Missouri, for the Bureau of American Ethnology by Mr. Gerard Fowke and transferred from the Bureau; remains of a series of Bannock and Paiute skeletons from Nevada, gift of the Hon. William Kent; skeletal remains of 16 individuals collected by Dr. Walter Hough for the Bureau of American Ethnology in Arizona and transferred by the Bureau; a Neolithic skull from Furfooz, Belgium, received in exchange through Prof. Charles Fraipont of the University of Liege, Belgium, a particularly valuable specimen, representing a special neolithic type; and a plaster bust representing a form of early man, received by purchase, a valuable addition to the collection.

The expedition of the curator to the Far East resulted in greatly enriching the collections. There were obtained over 2,000 portraits of the peoples of the Far East, particularly children, through gift, purchase and otherwise. The value of the set will be appreciated when it is stated that no single photograph of a Japanese, Chinese, or Korean child had previously been acquired by the Museum. Another expedition which resulted in enriching the collections was that of the Museum of the American Indian to the old Zuni Pueblo of the Hawikuh, New Mexico, in charge of Mr. F. W. Hodge.

A large contingent of the collections of the previous year were cleaned, brought into proper condition and catalogued, and the same is true of collections acquired during this year. In addition all the racks and drawers of the division were cleaned and a good start was made in the revision of the record and the marking of specimens, and needed attention was given to repair. The collections on the whole are in very good condition, but lack of adequate room is becoming a serious consideration.

It was found necessary to devote special attention to the preparation and publication of instructions in anthropometry and researches on the Old American families, all nearing completion. In the expedition to the Far East all possible attention has been given to the problem of the origin of the American Indian, and also to the allied problem of the peopling of Eastern Asia. In this connection and in connection with studies of the Old Americans needed attention was given to certain characteristics of the teeth. During the year a number of students availed themselves of the opportunity always freely granted to study the collections.

Numerous papers were published by the curator on anthropometry and ancient man; special reports on various topics were made for correspondents, and as editor of the *Journal of Physical Anthropology* he published numerous reviews and abstracts of anthropological literature.

Musical Instruments.—The collection of musical instruments, to which Mr. Hugo Worch has contributed in a most comprehensive

manner, has been further enlarged through his generosity by the following additions: A piano made by Isaac Hawkins in Philadelphia, 1801, and said to be the first American upright piano; a second made by C. F. L. Albrecht, Philadelphia, about 1827; and a third made by Babcock, Boston, about 1829; also a double bank harpsichord made by Burkhardt, London, about 1847. Mrs. J. Ryan Devereux, Chevy Chase, Maryland, gave 81 musical instruments of various types, a very noteworthy addition. A silver keyed flute made in Germany in the 19th century was received by bequest of Thomson H. Alexander, through Mrs. Alexander; and Mr. Harry L. McCalmont, Washington, District of Columbia, gave a Boehm-system flute and an oboe or hautboi used in present day bands and orchestras.

Ceramics.—In the ceramic gallery the installation was improved by the elimination of unimportant exhibits and rearrangement of others. Several specimens were transferred to the exhibit of the National Gallery of Art. Loans were credited to Miss E. B. Lowe of part of a set of old English porcelain with bold dragon design in sanguine, and from Miss Eliza Ruhamah Scidmore of several pieces of Japanese porcelain and bronze.

Graphic Arts.—The collections of this division, installed as during previous years in the main hall and chapel of the Smithsonian building, continued in charge of Mr. Paul Brockett with Mr. Ruel P. Tolman as assistant. In May Mr. L. W. Beeson, in charge of the section of photography, resigned and Mr. A. J. Olmsted was appointed to fill the vacancy.

Additions to the collections for the year are slightly in excess of those of the preceding year, the accessions numbering 15. The most important gift was that of Earle W. Huckel, which comprises 366 wood engravings, mezzotints, aquatints, photogravures, rotary photogravures, etchings, collotypes, Japanese wood block prints, halftones, reproductions in line, chromolithographs, and a "Plumbeotype." The following gifts also are worthy of mention: 4 miniature mosaics from Mr. Stockton W. Jones; 6 copies of saphiograph reproductions from the Crane Lithograph Company; and a piece of American-made vellum from Mr. George A. Hathaway.

In addition to the regular exhibition series a number of very large and beautiful photographs made by Secretary Charles D. Walcott of striking scenic features of the Yellowstone National Park and a collection of 32 water color paintings of Eastern spring and summer flowers by Mrs. Charles D. Walcott were placed on view.

All of the collections of the division, both study and exhibition were carefully gone over from time to time to see that the cases were dust tight and that the exhibits were properly arranged and labeled.

In the section of photography there was but one accession during the year, that of the photographic apparatus used by Muybridge in

his important studies of the motion of animals, researches made under the auspices of the University of Pennsylvania. These researches developed the possibility of recording motion by the camera, leading up to the wonderful development of recent years in moving pictures. The apparatus was presented by the Commercial Museum of Philadelphia.

History.—The division of history has remained, as during the previous year, in charge of Mr. T. T. Belote, curator, the only change in the staff being the promotion of Mr. Fred Kaske, skilled laborer, to the rank of preparator.

The accessions for the year are of very great importance and exceed those of the preceding year in number and in historic and scientific value. Through the cooperation of the War Department there were secured extensive collections illustrating the military activities of the countries engaged in the war. The services represented are: Air Service, Ordnance, Chemical Warfare, Quartermaster, Engineer, and Signal Corps. The following may be mentioned: A collection of military aeroplanes showing the principal types used by the United States during the war, and captured German planes, lent by the Air Service; a very large and representative collection of ordnance equipment of the type used by the armies of the United States and the allied countries during the war, including field guns, machine guns, small arms, sectionalized projectiles, adapters and boosters, tools and accessories, and various other objects of military interest, lent by the Ordnance Department as were also a large and interesting collection of German and Austrian field guns, howitzers, mortars, machine guns, and miscellaneous enemy ordnance equipment, captured by the American Expeditionary Forces in France, and a collection of rifles, pistols, and swords illustrating the types of these weapons used during the war by the several armies. A collection of projectiles and other offensive and defensive equipment of the types used in chemical warfare was lent by the Chemical Warfare Service; and a collection of American engineer materials illustrating the important part played in modern warfare by the Engineer Corps, lent by the Engineer Corps. From the War Department Quartermaster Corps was received as a loan a most varied and valuable collection of uniforms and of insignia showing the types worn by the armies of the several countries, representing uniforms worn by officers and enlisted men of the following countries: Belgium, France, Great Britain, Italy, Japan, Austria, Germany, and Turkey.

The pictorial collections, deposited by the General Staff, include nearly 500 drawings and paintings made by the official artists of the American Expeditionary Forces in France in 1918. These pictures afford a close up view of the war both at the front and behind the lines. They are of great artistic and historical value and are the

work of the following well known artists: W. J. Aylward, W. J. Duncan, Harvey Dunn, George Harding, W. Morgan, E. Peixotto, J. A. Smith, and Harry Townsend.

From the National Society of the Colonial Dames of America there was received as a loan a very interesting and striking addition to the war materials in the form of uniforms of the type worn by American women members of war organizations. The organizations represented in the collection include the following: American Red Cross, National League for Woman's Service, Woman's Land Army of America, American Committee for Devastated France, American Fund for French Wounded, National War Work Council of the Young Women's Christian Association, National Catholic War Council, Jewish Welfare Board, Young Men's Christian Association, American Friends Service Committee, American Library Association, U. S. Marine Corps, Signal Corps Telephone Unit, Emergency Aid of Pennsylvania, and the Salvation Army.

A very unique addition was a collection of war toys made in the United States during the war and illustrating the growth of the toy industry in this country as a result of the conflict, including representations in miniature of many classes of war material with small arms, machine guns, tanks, battleships, aeroplanes, a majority being figures of the soldier; gift of the Toy Manufacturers of the United States of America, New York City.

The numismatic section of the war collections has received numerous and valuable additions during the past year, including the following: A collection of the principal decorations and medals of the type awarded by the governments of the most prominent allied and enemy countries for special service in connection with military and other war work; transfer from the Quartermaster Corps. A collection of bronze and silver medals issued by the allied countries in commemoration of notable events during the World War was purchased. This series constitutes a unique record in medallion form of the part played in the War by many of the nations involved.

The foremost accession of the year, aside from those resulting directly from the War, was a collection of objects relating to the career of Cyrus W. Field and the laying of the first Atlantic telegraph cables, 1858-66. In 1899 Mrs. Isabella Field Judson, the daughter of the eminent projector of this historic work, lent to the Museum a collection of mementoes of her father and his great achievement, which were assigned at the time to the division of mechanical technology. During the past year Mrs. Judson secured for the Museum from the Metropolitan Museum in New York City, as a loan, many other objects of great interest in this same connec-

tion; and these have been united with the former collection and the whole assigned to the division of history and are now appropriately displayed with other mementoes of the great characters and events of American history. The latest accession of Field material includes the following relics: Six gold medals presented to Mr. Field in recognition of his great work in uniting two continents by means of an electric cable. These were awarded respectively by the Congress of the United States, the Chamber of Commerce of New York, American Chamber of Commerce of Liverpool, the State of Wisconsin, the Paris Exposition of 1867, and a number of New York friends. All of these medals are beautiful examples of the medallic art and of great intrinsic and historic value. The medal awarded by Congress was contained in an exquisitely designed mother of pearl box with gold decorations. The collection also includes a gold box of exceptionally beautiful design presented to Mr. Field by the City of New York; a silver mounted tankard, made of wood from the Charter Oak; an engrossed copy of the Joint Resolution of Congress and an engrossed copy of the Resolutions of the Legislature of Wisconsin presenting the gold medals already mentioned; an oil portrait of Mr. Field by David Huntington, 1879; seven large oil paintings by Robert Dudley illustrating episodes during the laying of the cable of 1866; and a series of forty-four water colored drawings by the same artist dealing with the same subjects.

A worthy collection of military relics owned by Major General John R. Brooke, U. S. Army, including presentation and service swords, pictures, badges of patriotic societies, documents and miscellaneous mementoes of his long and eventful military career was received as a gift. A collection of personal mementoes of Miss Susan B. Anthony (1820-1896) and numerous relics illustrating the history of the woman suffrage movement in the United States, 1848-1919, including an oil portrait of Miss Anthony by Sarah J. Eddy representing her as receiving the thanks of the coming generation for her services to the cause of woman suffrage, was a gift of the National American Woman Suffrage Association. The military uniform collection was increased by a large number of foreign uniforms of the type worn prior to the World War by the armies of many nations, American and European, transfer from the Quartermaster Corps. There was also received as a loan from the same source a collection of United States uniforms illustrating the types worn in the United States Army, 1776-1909; this collection included also insignia, flags, equipment, pictures, and miscellaneous relics.

During the year the collection of philatelic material in the care of the division was increased by 5,872 specimens, of which 4,345 were

received by transfer from the Post Office Department. Of these 2,475 are of the new issues received by that Department from the International Bureau of the Universal Postal Union, Berne, Switzerland.

During the past fiscal year the exhibition space of the division has been greatly increased by the assignment to its use of two ranges on the ground floor of the Natural History building. In these have been installed, with the competent assistance of Major J. H. Spangler and under the general direction of Major General H. L. Rogers, Q. M. C., extensive exhibits furnished by the War Department, noteworthy features being the collections of military costumes and equipment and the appliances of chemical warfare. The Arts and Industries building accommodates diversified collections relating to the recent war: Uniforms worn by women organizations during the war, collected and lent to the Museum by the National Society of Colonial Dames of America; captured German ordnance materials; small arms of the type used by the armies of the allied and enemy countries; and a collection of American war toys showing the development of the toy industry in the United States during the war. A collection of German field guns has been installed out of doors on the west side of this building.

The Copp collection of miscellaneous colonial household and other relics, which has never been previously satisfactorily installed on account of lack of space, has been brought together in the west gallery of the Arts and Industries building, advantage being taken of the fact that this section of the west gallery was particularly suited to the purpose. This collection is now well shown.

The future of the historical collections must be given careful consideration if they are to fulfill their proper function in the Museum scheme and in the estimation of Congress and the public. A first requisite relates to the housing of the division—of its offices, its laboratories, its storage and its extensive exhibition collections, in close association, if not under a single roof—then a staff adequate to the varied work in hand.

Historical Costumes.—The growth of the section of historical costumes during the year is gratifying, and much credit must be given to Mrs. Julian-James and Mrs. R. G. Hoes for their never-failing interest in perfecting the collection. The chronological series of costumes of mistresses of the White House is nearing completion; Mrs. Woodrow Wilson has recently contributed a black velvet dress worn by her on state occasions for which a lay-figure is in preparation under her personal supervision, and Mrs. J. Stanley Brown has added a lace flounce and other needed parts for the completion of the costume of her mother, Mrs. James A. Garfield.

Art Textiles.—On a recent visit to America, Lady Allan Johnstone indicated her intention to make permanent as a gift that portion of the laces left as a loan by her mother, Mrs. J. W. Pinchot, founder of the art textile collection. This public-spirited action on the part of the Pinchot heirs establishes firmly the national collection of laces of every type, which formerly was made up almost solely of loans from the ladies who were interested by Mrs. Pinchot. The valuable loan collection of Oriental rugs installed last year was still on exhibition. It contains choice examples of the following makes: Armenian, Dragon, Turcoman, Caucasian, Anatolian, Ispahan, Beshire, Hamadan, Ferahan, Yomud, Herati, Bergamos, Shiras, Kuba, Mujour, Kulah, Cabistan, Ourshak, Sarook, Lesghian, Konia, Yoruck, Joshgan, Lerma, Syrian, and Spanish.

Anthropological Laboratory.—The laboratory continued in the efficient hands of Mr. W. H. Egberts. Important features of the laboratory work are the modeling of exhibits in clay, casting these in plaster and finishing in color. During the year a lay figure group of Kiowa children at play, comprising seven figures, was completed and placed on exhibition, and a single figure was added to the group of the Zuni pottery-makers. Numerous casts of exhibits injured in transportation or rendered disreputable by use and the hand of time were repaired and repainted, broken crockery was mended and picture frames were repaired and regilded. A bust in plaster was molded and cast, to be utilized in installing the costume, recently presented, of Mrs. Woodrow Wilson, for the series of the mistresses of the White House. A special feature of the work was the casting and painting of parts of lay figures for the Red Cross Museum, and the modeling of numerous miniature figures for a group to represent an American Red Cross canteen in France, and was at the close of the year in course of preparation. During past years the laboratory had become a storehouse of molds and casts, a large part of which were imperfectly recorded and in bad condition. All of this material was assorted, classified, repaired, recorded, marked, and systematically arranged in racks and shelves or stored in the attic. Rejected materials were condemned and destroyed.

REPORT ON THE DEPARTMENT OF BIOLOGY,

By LEONHARD STEJNEGER, *Head Curator.*

IMPORTANT CHANGES IN ORGANIZATION AND STAFF.

The present organization of the department of biology is but slightly different from what it was twenty years ago. In 1900 it embraced nine divisions with a salaried scientific staff of 18 persons; in 1910 there were eight divisions, with a similar staff of 19 persons; at the beginning of the fiscal year 1919-20 it consisted of seven divisions with 20 salaried scientific workers. Nor has the honorary staff been materially increased during that period. Twenty years ago the collections, then only a fraction of their present magnitude, were housed in the old museum building and the Smithsonian building. At the end of the first half of this period they occupied practically the same space as at the beginning, and the staff was then barely able to cope with the increase. Then, in 1910-11, came the moving into the new building. The enormous collections had to be removed and rearranged, but there was no increase in the scientific staff. The time which the staff formerly had been able to devote to study of and report upon the collections was then to a great extent taken up with the reinstallation, a work which in some of the divisions is scarcely finished as yet for lack of increase in the staff. In the meantime the collections grew at an unprecedented rate. Thus of plants alone there were added more than one million specimens during the twenty years, and in other divisions the increase was not less startling. If in some of them the increase does not amount to such figures, the specimens made up in bulk what they lacked in numbers. Thus, this period saw the addition of the unequalled mammal material gathered by the various African and Malayan expeditions. Additional work and care was thrown upon the vertebrate divisions by the abolition of the division of comparative anatomy and the distribution of its bulky and diverse collections among the other four divisions. With this vast increase in the material and the consequent mounting care and responsibility; with the great expansion of the activities after the occupancy of the new building; and with the constantly growing demands due to the rapid progress of science in this country and abroad, there has been no expansion of the organization of the department of biology, the

increase in its scientific staff having been one person for each ten years. Not only was there no expansion commensurate with the growth of the collections and the buildings, but there was practically none whatever. In looking over the collections as they are now as compared with what they were twenty years ago, and in further contemplating the splendid series of 35 volumes of Proceedings and more than 80 volumes of Bulletins published by the Museum during these twenty years the wonder is how it has been humanly possible for the organization to accomplish such results.

It was distinctly recognized when this department was inaugurated that the organization was far from complete and that it was comparatively weak in the invertebrate classes, but it was hoped that conditions would improve and that it would be possible gradually to increase the divisions and augment the staff as the collections expanded. Moreover, two other Government institutions, devoted pre-eminently to biological research, namely, the Fish Commission and the Bureau of Entomology, were in those early days in a better position than they are to-day with regard to systematic zoological work not directly applicable to economic problems. Their tendency has been to gradually turn away from unapplied science and the work in this line has been shifted more and more over on to the Museum.

This lack of growth and expansion in the basic systematic work of the Museum has reacted unfavorably on the work of the biological scientists who in other branches of the federal or state government have to apply the material supplied by museum workers to the economic questions which in ever increasing degree are depending upon strictly systematic research. As a result there has sprung up a movement among scientific men outside of the Museum and of the Government for the purpose of bringing about increased facilities and a larger staff. At the meeting of the American Association for the Advancement of Science in New York during Convocation week of 1916, the Entomological Society of America and the American Association of Economic Entomologists appointed each a committee of five members "to promote the adequate development of the insect collections in the National Museum." The two committees submitted reports at the meeting in St. Louis in 1919, which were consolidated into one and published in "Science" March 5, 1920. The gist of the report is that "the National Museum, under present conditions, or better, limitations, can not possibly adopt an adequate policy of entomological development. The two prime obstacles are lack of sufficient curators and lack of space. The present force of curators, even with the aid afforded by the members of the Bureau of Entomology, can not arrange and classify the collections already on hand, incomplete as they are. . . . The Museum should have enough expert curators to keep classified and in order the available material in

every group of insects, and to furnish identifications and other aid to entomologists and other workers in every State." The statements by these committees as to the limitations of the Museum with regard to the insect collections apply with equal force to the other invertebrates. There is a crying need for more investigators, for more specialists. For the better development of the collections it is urgently required that the different groups of the invertebrates should be in the immediate care of responsible experts.

As a step, however slight, in the right direction, it is therefore with great satisfaction that I place on record the establishment on April 1, 1920, of a separate division of echinoderms with Mr. Austin H. Clark, formerly assistant curator of marine invertebrates, as curator. As Mr. Clark has also devoted considerable study to the Onychophores, they were also placed in his care. It is to be hoped that in the near future other large classes and phyla, such as the crustaceans, coelenterates, annulates, mollusks, etc., may be segregated as independent divisions.

The other changes in the organization and staff consist of the resignation of Dr. Frank N. Blanchard on October 31, 1919, as aid in the division of reptiles and the appointment, until a register can be established by the Civil Service Commission, of Miss Doris M. Cochran to fill the vacancy. In the division of insects, Mr. J. C. Crawford resigned the honorary custodianship of Hymenoptera, and Mr. S. H. Rohwer, of the Bureau of Entomology, was appointed in his place. Mr. Waldo L. Schmitt, assistant curator in the division of marine invertebrates, was given the title of associate curator from April 1, 1920. In the division of plants Mr. Emery C. Leonard, who had been furloughed for military service, resumed his duties as aid on July 18, 1919, and on July 7, 1919, Mr. Ellsworth P. Killip was appointed temporarily as aid pending the establishment of a register of eligibles by Civil Service examination.

COMPARISON OF INCREMENT OF SPECIMENS OF 1919-20 WITH THAT OF 1918-19.

While the number of specimens received in any one year is not a reliable criterion as to the progressive or regressive activity of a museum, nevertheless it furnishes a good index for an estimate of the work of a purely curatorial character expended by the staff as compared with other years. That is to say, if the staff has to handle twice as many incoming specimens in one year as compared with another, the inference is that the additional time spent in handling, classifying, and generally caring for the material in excess must have been taken from the time which would otherwise have been available for the scientific study of the collections and the reports thereon.

So that, when no extra help is available, the increase in material must mean a decrease in the scientific output, and as it is by the quality and quantity of the latter that the standing of an institution like the National Museum is properly judged, and not by the numerical size of the collections, an increase in the latter might be a handicap rather than an advantage. However, with the increased accumulation of specimens the scientific quality of the material must be supposed to increase, as the gaps become less, and the series for comparison larger, and in this respect, therefore, there is a distinct advantage in the progressively greater increment of specimens. Moreover, it is in the very nature of a growing museum that the collections should continue to grow, as a stagnating museum certainly means a decaying and retrograding institution.

With these reservations in mind it is satisfactory to be able to report that the total number of specimens received during the past year amounted to 136,765. As compared with the 482,740 specimens recorded for the previous year this has the appearance of a tremendous decrease, but the latter unprecedented figure was due to the incorporation of a single private collection of mollusks consisting of about 400,000 specimens, which it had taken the donor many years to accumulate. Leaving this collection, therefore, out of our comparison it will be seen that, numerically the year 1919-20 was a very prosperous one.

An estimation of the scientific value of the increment is also subject to a reservation due to the unequalled importance of the molluscan collection alluded to above. But putting this aside, the reports of the curators show a gratifying increase in the scientific importance of the material received. While in some of the divisions the value was at least equal to that of the previous year, in others the gain has been so marked as to call forth special comment. This is particularly true of the division of birds. No less than 163 species new to the collection were among the bird accessions and no doubt a larger number will be added when the two African and the Australian collections are fully identified. This splendid result was particularly due to the liberality of Mr. B. H. Swales, of Washington City, who placed a fund at the disposition of the division by which it was possible to obtain by purchase 96 species hitherto unrepresented in the Museum, thus filling up many severely felt gaps in our series. Mr. Swales has thus done for the bird collection what the Frances Lea Chamberlain Fund annually accomplishes for the molluscan collection. An equally gratifying report comes from the division of insects to the effect that the accessions of the present year excel in the unusual number of large foreign lots, especially as regards butterflies and moths, largely due to the activity of Mr. William Schaus.

The important accessions received during the present year may, on the whole, be characterized as being more or less supplemental to our exotic collections. Thus while our African collections were previously confined chiefly to east Africa; the present year has added more than 2,350 mammals, birds, reptiles, fishes and invertebrates from West Africa, collected by Mr. Aschemeier during the Collins-Garner Expedition, and at the same time Mr. Raven has sent about 250 mammals and birds from South Africa. Another of the more important accessions, including about 500 specimens, represents the first installment of Australian mammals, birds, reptiles, etc., collected by Mr. Charles M. Hoy in New South Wales. This is the first major collection of Australian vertebrates ever made especially for the National Museum, and is of prime importance because the indigenous Australian fauna is fast disappearing owing to the thoughtless introduction of foreign predatory animals.

Distributed among the various divisions or concerning them exclusively the more important accessions are as follows:

Mammals.—The greatest accession was that of the Collins-Garner collection from French Congo consisting of 695 specimens including 2 gorillas, 2 chimpanzees, 2 buffaloes, 5 pigs, and 27 antelopes. The 240 Australian specimens, collected by Mr. Hoy form another extremely important addition from a region from which we had hitherto almost no material. From southern Africa 113 mammals were received, collected by Mr. H. C. Raven of the Smithsonian African Expedition, which will be of great value for comparison with our East African material now being reported on by Mr. Hollister. Thirty-one mammals collected by Dr. W. L. Abbott in Santo Domingo are of considerable importance, as they include two solenodons and material from shell heaps. Mr. E. C. Chubb of the Durban Museum, Natal, South Africa, presented the Museum with 2 small rodents, one of them the exceedingly rare *Petromys*, hitherto unrepresented in the Museum. The skull of a beaked whale from Florida donated by Mr. Charles Ericsson, Hallandale, Florida, also deserves mention, as such material is highly desirable.

Birds.—The 679 specimens collected by Mr. Aschemeier in French Congo have as yet been determined only partly, but enough have been identified to make it safe to say that the collection contains a large number of genera and species new to the Museum, among them such genera as *Himantornis*, an unusual type of rail; *Pteronetta*, a rare duck, of which but few samples exist in museums; *Tigriornis*, a heron, and *Calopelia*, a pigeon, both rare; *Ixonotus*, a genus of bul-buls hitherto unrepresented in the Museum, although known since 1851, etc. The Santo Domingo material collected by Dr. W. L.

Abbott personally consisted of 210 skins, 71 alcoholics and skeletons, 45 eggs and one nest, among them four species or subspecies not previously in the Museum, besides several other rare species. Eggs of *Nesocittes micromegas*, a small woodpecker, and *Todus angustirostris*, the narrow-billed tody, proved new to the Museum. Hoy's New South Wales collection, which we also owe to Dr. Abbott's generosity, 228 specimens, also contains many species new to or poorly represented in our series, since we have received but few Australian birds in recent years. The addition of 99 skins representing 96 species all new to the Museum collections, having been purchased through the "Swales fund" has already been alluded to. They consist chiefly of old world babblers, thickheads (13 species), pigeons, cuckoos, woodpeckers, barbets, pittas (5 species), kingfishers (12 species) and other desiderata. Included in this lot were four genera new to the Museum; *Serilophus* (a genus of broadbills), *Melanocharis* and *Pedilorchynchus* (New Guinea and African flycatchers, respectively), and *Pachyglossa*, a flowerpecker. Another large addition of 58 species and subspecies not hitherto contained in our collection was obtained in exchange with the American Museum of Natural History, New York. It consisted of 666 skins, all from Colombia. The first installment of the Smithsonian African Expedition contained 126 specimens collected by Mr. Raven in southern Africa, of which at least 9 species proved new to the Museum series. From the estate of Mr. Allan H. Jennings there was received as a gift a collection of 1,298 skins, mostly from the United States, but with some desirable material from the Bahamas, including several specimens of the rare Kirtland's warbler (*Dendroica kirtlandi*). A transfer from the Biological Survey is particularly noteworthy because it contained a large amount of anatomical material which supplies deficiencies in this branch of the collection. It also contained 135 skins and 7 eggs from France, collected by members of the Survey staff serving oversea during the war. A series of 105 carefully prepared specimens from California given by Mr. Edward J. Brown, of Los Angeles, California, contained series of immature plumages of various species particularly wanted by the Museum. The expedition of Maxon and Killip to Jamaica enriched the anatomical collection with 41 alcoholics and skeletons, some of them highly desirable, such as the rare *Laetes osburni*, an aberrant member of the vireo family. Among the smaller accessions there are several which deserve mention, since they include species new to our collection. Thus one by Mr. Francis Harper, of the Biological Survey, includes the type of a new subspecies of hedgesparrow from France, and Colonel Wirt Robinson, U. S. Military Academy, West Point, New York, a skin of *Aithya scitulus*, a long-tailed hummingbird from Jamaica.

Reptiles and Amphibians.—In addition to numerous specimens from the French Congo, and New South Wales, collected by the expeditions mentioned elsewhere, the most interesting and important addition was that of the long lost *Cyclura ricordii*, a large ground iguana from Santo Domingo, rediscovered by Dr. W. L. Abbott. Another interesting addition was that of a very rare North American snake, *Phyllorhynchus browni*, from Arizona, which with eight other snakes was presented by Mr. G. Hofer of Tucson, Arizona.

Fishes.—The Bureau of Fisheries transferred 1,556 specimens from various localities. In addition to these it also transmitted 30 specimens of fishes collected by Dr. N. Gist Gee, at Soochow, China, which form the basis of a paper by Messrs. H. W. Fowler and B. A. Bean, which is now in press. A very interesting collection of South American fishes collected in western Colombia, Ecuador, and Peru by Dr. C. H. Eigenmann, of the University of Indiana, Bloomington, Indiana, was obtained in exchange.

Insects.—Any large collection of insects is sure to contain important additions to our series, especially if made in some extralimital locality. It will therefore suffice to enumerate the largest accessions which were as follows: 5,000 Lepidoptera of the Hawaiian Islands and 500 Hesperidae from South America, gift of Mr. B. Preston Clark, Boston, Massachusetts (through William Schaus); 2,000 Heterocera (moths), including about 60 types, and 150 Rhopalocera (butterflies), gift of Dr. William Barnes, Decatur, Illinois; 6,000 insects of various orders, gift of Mr. William H. Mann, through Bureau of Entomology, collected in Honduras; 5,770 specimens of miscellaneous insects, gift of Mr. E. A. Schwarz, collected in Southern Florida; 4,000 specimens Diptera of Costa Rica, purchased; 725 specimens insects of northern Australia, mostly named, gift of Dr. J. F. Illingworth, Meringa near Cairns, North Queensland; 100 specimens Arctiidae (moths) from South Africa, all new to the collection, by exchange from Mr. A. Janse, Pretoria; 100 specimens oriental Papilionidae (butterflies) new to the collection, gift of Prof. Edward T. Owen, Madison, Wisconsin (through William Schaus); 1,050 specimens insects of Central Mexico, sent for determination and retention by the Mexican Department of Agriculture (through the Bureau of Entomology, Department of Agriculture); 3,425 specimens miscellaneous insects, transferred from the Bureau of Entomology, Department of Agriculture; 3,505 specimens miscellaneous insects, transferred from the Bureau of the Biological Survey, Department of Agriculture.

Marine Invertebrates.—The collection of Hawaiian marine shells donated by Mr. D. Thaanum, Hilo, Hawaii, estimated to contain over 5,000 specimens, deserves particular mention. According to the curator's report it has long been known as the best existing collec-

tion of authentically located marine Hawaiian shells. Taken together with the *Albatross* deep-water dredgings, it puts our Hawaiian series at the head of the list; the material is of the best, the series of specimens shows stages and local variations, the operculate gastropods in most cases have the opercula carefully preserved. The specimens are accompanied by interesting field notes. The collections were made by Mr. Thaenum and his brother-in-law, Mr. J. B. Langford. These two men have devoted all their spare time to this undertaking and the collections are the result of years of effort in a region presenting unusual difficulties to the collector. The collection is being reported upon in the monograph on the Hawaiian marine mollusks in preparation by Dr. W. H. Dall. A no less valuable accession is due to the generosity of Mr. John B. Henderson, of Washington City, a regent of the Smithsonian Institution, who purchased and presented to the Museum part of the William F. Clapp collection of New England land and fresh water mollusks, consisting of about 10,000 specimens. He also donated 33 species (about 200 specimens) of Sphaeriidae from the United States and Naiades from North and South America. The continued contributions from Dr. W. L. Abbott's explorations in Santo Domingo, more than 375 specimens, have proven quite valuable. As in previous years the U. S. Bureau of Fisheries forms one of the chief sources of material received in this Division. In addition to the ones particularly mentioned below as exceptionally valuable there were received a number of smaller lots of miscellaneous invertebrates. Several of the collections have been reported on, such as the Cephalopods, including 20 types of new species, collected by the steamer *Albatross* in the Northwestern Pacific and reported on by Mr. Madoka Sasaki; 240 Philippine Annelids, remainder of the collection reported on by Dr. A. L. Treadwell; the final installment of the Medusae and Siphonophores, including type specimens; collected by the steamer *Bache* and reported on by Dr. H. B. Bigelow. There was also a collection of Philippine Planarians with a set of ten colored drawings with descriptive notes, secured by the *Albatross* Expedition, 1907-10. The acquisition of type material is of such importance and has been made such a prominent feature of the national collection that it requires separate mention. Thus, among a number of miscellaneous accessions from various bureaus of the Department of Agriculture there was one new earthworm from Guatemala, submitted by the Federal Horticultural Board. From the British Museum type material of various recent Bryozoa was obtained in exchange. Mr. C. M. Weber, Balabac, Philippine Islands, donated 20 species (1,119 specimens) including types one new species and three subspecies from the Philippines. Among a number of mollusks from Guatemala and Mexico presented by Mr. A. A. Hinkley, Du Bois, Illinois,

there were several types. The crustaceans given by Dr. Carl C. Engberg, University of Nebraska, contained the type and paratypes of *Balanus engbergianus* Pilsbry. Among a number of landshells presented by Mr. Walter F. Webb, Rochester, New York, was a type of a new species described by Dr. Paul Bartsch, who also described the *Teredo* (*Neoteredo*) *reynei*, a new subgenus and species, from material donated by Mr. A. Reine, Paramaribo, Dutch Guiana. A miscellaneous collection received from the Museu Paulista, Sao Paulo, Brazil (Mr. Alfonso d'S. Taunay, director) contained types of 2 worms and 4 crustaceans. Mr. H. N. Low, Long Beach, California, presented, with other mollusks, 4 types of new subspecies. The type of a new species of amphipod was found among 10 species of crustacea received from the Brooklyn Museum, and of a terrestrial isopod among some Bahaman specimens collected by Dr. William Mann. A collection of natural history objects made in Chile by Dr. Charles G. Abbot, Assistant Secretary of the Smithsonian Institution, included an isopod described as new. Two paratypes of the mollusk *Vertigo modesta microphasma* was donated by the describer, Dr. S. S. Berry, Redlands, California, and a cotype of *Brachypodella nidicostata*, from Venezuela, also a mollusk, was likewise presented by its describer, Mr. George Spence, Pine Grove, Lancastershire, England. Three new subspecies were described from some Philippine landshells donated by Mr. H. C. Higgins, Belmar, New Jersey. Type material was also represented in a collection obtained in exchange from Dr. F. Felippone, Montevideo, Uruguay, and in crustaceans from Lake Valencia, collected and described by the donor, Dr. A. S. Pearse, University of Wisconsin. Dr. Bryant Walker, of Detroit, Michigan, presented the museum with 8 specimens (4 species) cotypes of Amnicolas, mollusks from Guatemala. An interesting accession consisted of two albino landshells, *Epiphragmophora tudiculata* Binney, from California, the first of the kind received by the Museum. They were donated by Dr. R. H. Tremper, Ontario, California.

Echinoderms and Onychophores.—The most noteworthy accessions were six onychophores collected in Honduras and donated by Dr. William M. Mann, of the Bureau of Entomology, and a denuded test of the giant sea-urchin, *Metalia pectoralis* (Lamarck), from Jamaica, presented by Mr. Charles Emery Asbury, Consular Service, Department of State.

Plants.—The accessions include highly valuable collections from all over the world. Besides important North American material, there are represented plants from Mexico and Central America, Colombia, British Guiana, Brazil, Argentina, Europe, Africa, China, Sumatra, etc. The more important ones are as follows: 8,190 specimens transferred by the several bureaus of the U. S. Department of

Agriculture, Washington City, all but about 500 of this number having been received from the Bureau of Plant Industry. This material includes 3,000 duplicate grasses intended for distribution in the centuries of American grasses which are being prepared under the direction of Mr. A. S. Hitchcock, custodian of the grass herbarium; 887 specimens of Mexican plants from little known parts of Sinaloa, transmitted by the Forestry Commission of that state; 854 specimens collected in British Guiana by Mr. A. S. Hitchcock; 875 specimens collected in China by Mr. J. B. Norton; 337 specimens collected in Florida by Mr. W. E. Safford, this having served as the botanical basis of his recent Smithsonian paper upon the natural history of Paradise Key; 2,398 specimens were received in exchange from the New York Botanical Garden, Bronx Park, New York City, Dr. N. L. Britton, Director. This material consists largely of plants collected in Colombia by Messrs. Rusby and Pennell, and includes also a lot of 292 marine algae, chiefly from the West Indies. Likewise in exchange there were received 923 specimens of Mexican and Central American plants from the Botanical Museum of the University at Copenhagen, Denmark. This material consists chiefly of specimens collected long ago by Liebmann and Oersted, and is of unusual historic interest and value; 557 specimens, received from the Academy of Natural Sciences, Philadelphia, Pennsylvania, collected in Alberta by Mr. Stewardson Brown are of value as having served as the basis of a manual entitled, "Alpine Flora of the Canadian Rocky Mountains," published a few years ago by Mr. Brown. Other important material collected by various expeditions is mentioned below.

EXPLORATIONS AND EXPEDITIONS.

Among the various expeditions by which the Museum has been benefited three stand out prominently.

The Collins-Garner Congo Expedition in the interest of the Smithsonian Institution had already returned before the beginning of this fiscal year, and an account of its achievements is therefore found in my report for 1919, but the specimens have not been incorporated into the Museum series until the present year. The other African expedition was entered upon by the Smithsonian Institution in conjunction with the Universal Film Manufacturing Company. The latter having organized under the direction of the experienced collector, Mr. Edmund Heller, an expedition which was to penetrate Africa from south to north by way of Lake Taganyika for the purpose of obtaining cinematographic films of the natives along the route and offering to pay the expenses of one or more scientific collectors while in that continent, the Smithsonian Institution obtained the services of Mr. H. C. Raven, who for several years past had been collecting in the Malayan Archipelago. Mr. H. L. Schantz also joined the expedition

on behalf of the Department of Agriculture in order to collect plants which might advantageously be introduced into the United States, and make other pertinent botanical studies. The expedition sailed from New York on July 16, 1919, and landed in Cape Town, South Africa. A first installment of specimens as noted above has been received and is of great interest and importance. The third major expedition we owe to the continued generosity of Dr. W. L. Abbott, who in view of the poverty of the National Museum in Australian material and the threatened extinction of the native fauna, decided to send Mr. Charles M. Hoy to the southern continent. In the words of the curator of mammals it may be truly said that from the standpoint of the national collections probably no field-work of similar scope could approach this in importance. The fact had long been recognized, but the means for putting such a project into execution have hitherto been lacking. The remarkable Australian mammal fauna was represented in the Museum by only 200 specimens, and the other vertebrates were not better off. Not only is this true of our collections, but it is equally true of other museums in America. Mr. Hoy arrived in Sydney about the end of May, 1919, and from June to November he collected in various localities in New South Wales. An interesting account of his experience up to that time has been published in the Smithsonian Exploration Pamphlet for 1919, Smithsonian Miscellaneous Collections (vol. 72, No. 1, pp. 29-32). Since then he has continued his work in South Australia with varying success. To show both the importance of this expedition and the difficulties already encountered the following extract is taken from one of Mr. Hoy's reports:

The poor luck in mammals is explained by the total extermination of most of them. This has been caused mainly through the introduction of foxes and cats. Both of these animals are extremely plentiful. The fox has only been plentiful during the last three and four years and is still being introduced by the sheep men as they claim that the fox kills the rabbits. This may be so but what killing he has done has made very little impression on the rabbits while the native mammals have been completely wiped out. This has been done only during the last few years which is illustrated by what an old kangaroo hunter told me. He said that as late as two years ago he was sure of at least six or seven dozen wallaby skins a week, while this year he hasn't even seen one! This was substantiated by numerous other individuals. One gentleman took me to a place where only eight months ago he shot nineteen wallabies in an evening. He also said that bandicoots and "pinkies" (quite probably the rabbit bandicoot) were quite common then. We searched carefully but not even any signs were seen while traps brought no result. The banded ant-eater (*Myrmecobius*) was also occasionally seen up to several years ago, but the last one seen was taken by a boy in a rabbit trap eighteen months ago. The bandicoots and "pinkies" are said to still exist but I was not able to hear of any being seen in the last six months. That the cats are working havoc among the birds is shown by the fact that one cat I killed had five birds and the unidentified remains of a small marsupial in its stomach.

Dr. Abbott himself has continued his own personal explorations in the island of Haiti. He visited Santo Domingo in July, 1919, and remained until the early part of October, collecting in the vicinity of Sosua, on the north side of the island, and later at Saona Island in the Samana region, and at Lake Enriquillo. Early in 1920 he left for Port au Prince, Haiti, accompanied by Mr. Emery C. Leonard, aid in the division of plants, who was to attend to the botanical collecting. They first visited Gonave Island and then returned to Port au Prince, making collections in that general vicinity. The field work, which was not concluded at the end of June was productive in yielding excellent material from a region in which very little collecting has been done during the last hundred years.

Dr. C. D. Walcott, Secretary of the Smithsonian Institution, incidental to his geological explorations in Alberta, Canada, paid considerable attention to the recent animals as well with the result that a number of valuable mammals, including a Rocky Mountain goat, and a collection of about a thousand specimens of land and fresh water mollusks were added to the national collections. Mrs. Walcott, who accompanied her husband, contributed a number of plants which form the basis of her paintings of the wild flowers of this interesting region.

Several botanical expeditions have been undertaken during the year in cooperation with other agencies bearing most of the expenses of the field work. Thus, Mr. Paul C. Standley, assistant curator of the division of plants, spent approximately ten weeks in Glacier National Park, Montana, securing data for a handbook of the plants of that region to be issued by the National Park Service. About 4,000 herbarium specimens were secured, besides extensive notes upon the plants and a large series of photographs. Mr. A. S. Hitchcock, systematic agrostologist, Department of Agriculture, and custodian of the section of grasses in the division of plants, devoted about four and one-half months, beginning October 1, 1919, to botanical exploration in British Guiana, under the cooperative plan of exploration entered into with the New York Botanical Garden and the Gray Herbarium of Harvard University, as detailed in my report of last year. Special attention was given to the grasses, of which 30 sets of 108 specimens each were collected, but about 4,400 specimens in other groups were also collected. Mr. William R. Maxon, associate curator in the division of plants, and Mr. Ellsworth P. Killip, aid in the same division, spent about ten weeks from February to April, 1920, in botanical exploration of Jamaica, cooperating with the Gray Herbarium of Harvard University, the New York Botanical Garden, the Field Museum of Natural History, Chicago, and the University of Illinois. Sets of woody plants and orchids will be sent to the Arnold Arboretum of Harvard

University and to Mr. Oakes Ames, Boston, Massachusetts, in return for contributions towards the exploration. The expedition was a great success and a large material was collected.

Dr. William M. Mann, of the Bureau of Entomology, went to Honduras for the month of March, 1920, in the interest of the Bureau, the object being to inspect banana plantations for insects which might be important in quarantine. He improved the opportunity, however, to make extensive collections which were turned over to the Museum. Thus the division of insects received about 6,000 insects, and the division of reptiles an interesting series of turtles.

As usual the various exploring expeditions of the Bureau of Fisheries and of the Biological Survey have been very advantageous to the Museum. However, no major expeditions were undertaken which require individual mention, except, perhaps, the cruise of the Bureau of Fisheries Steamer *Albatross* off the southeastern coast of the United States during the fall of 1919, which contributed a very desirable collection of miscellaneous invertebrates from this area.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS. PRESENT CONDITION OF COLLECTIONS.

The continued occupation of the storage room of the mammalian study series on the ground floor by the war museum and the consequent closing up of the exhibits in the entire west and northwest range on the second floor has not only caused great hardship to the mammalogists of the Museum and the Biological Survey, but has also greatly hindered the work on the exhibition series, which is now limited to the space on the first floor and the whale hall, reptile and fish hall and the skeleton exhibit on the second floor. As a partial result of this condition, the work on large mammals has been practically limited to the mounting of one west African buffalo, while nine smaller ones have also been finished. The mammal collections already on exhibition have required considerable attention however. Thus the removal of several of the larger animals from their polished walnut stands and their replacement in the cases with sanded bottoms has been accomplished. The cleaning of the inside of the glass in the large habitat groups required much time because of the extreme care necessary. A great amount of repair work has also been necessary, especially on the specimens not in cases. The two valuable giraffes particularly have been the source of considerable worry and work. With the excessive changes of moisture and temperature to which they are exposed at all seasons near the open windows they are in need of constant care and attention. Suggestions for the rebuilding of the northern wall case so as to accomodate these unwieldly speci-

mens which can not be placed in an ordinary case because of their excessive height have been submitted in connection with the estimates for exhibition cases for the next fiscal year. In the bird hall the entire collection has been gone over, cleaned, and rearranged in connection with the making of a card catalogue of the specimens exhibited. This was a time-consuming and laborious task due in considerable measure to the cases, which, in order to be made dustproof, are so constructed that several men specially trained are needed for opening and closing the cases. The verification of numbers and identifications also consumed considerable time. The rare and extinct birds which had been removed for safe-keeping during the time the exhibition halls were occupied by the offices of the War Risk Bureau, were restored to their places in the exhibit. A number of newly mounted birds were also added, and the Flamingo group, practically rebuilt by Mr. William Palmer, was reinstalled among the habitat groups in the bird hall.

As there seemed small hope of being able in the near future to open up to the public the north and northwest ranges of the second floor, where the District of Columbia fauna was exhibited, the latter was reinstalled in the whale hall as a temporary expedient. This heterogeneous exhibit not only interferes with the proper display of the smaller whales, but has made it impossible to make speedy progress with the plan to build habitat groups in which to display the birds of the District, though one has been finished. Some additions were made to the local exhibit of reptiles and amphibians.

In the various divisions the curatorial work has progressed as usual. In the division of mammals the rearrangement of some of the overcrowded skin cases was begun upon the receipt of four unit storage cases. The arrangement of the small and medium skulls in the basement was completed and work done on the large skulls in the attic has greatly improved their condition. The rearrangement of the skeletons in the attic also made some headway, the proper casing facilities having been furnished.

In the division of birds the crowded condition of some of the groups necessitated respacing of a large number of cases. The accumulations of eggs for several years past, numbering between 2,300 and 2,500, were arranged in trays, with cotton partitions between the specimens, labeled, and distributed in the collection. The arrangement of the osteological collection in quarter-unit storage cases was completed during the year, enough new cases having been provided to permit the elimination of the old mahogany base cases previously in use. The entire collection of cleaned skeletons, numbering over 5,677 specimens, is now readily accessible and card catalogued. The work of arranging the collection of skeletons is almost exclusively due to the volunteer services of Dr. A. Wetmore. Considerable time

was spent by the associate curator, Dr. C. W. Richmond, as in a preceding year, in piecing together old records of distribution of specimens to other institutions. The importance of this work may be easily perceived when it is stated that numerous actual type specimens are sometimes involved, the tracing and recovery of which amply repays for the trouble involved. As an illustration of the occasional success attending these efforts, Doctor Richmond cites the discovery that a collection of over three hundred and fifty mounted birds had been sent to the Chicago Academy of Sciences in 1881. The correspondence furnished the clue that they had been sent as a loan, and an examination of the invoice which was finally brought to light made it apparent that several type specimens had been included. A few of the latter were returned in 1903, but the remainder could not then be located. Information having been received in 1919 that the Academy was disposing of all its old collection in an endeavor to concentrate on certain educational lines, a request was made for the return of all material with Smithsonian labels resulting in the recovery of no less than 268 specimens. Careful examination disclosed among them seven additional type specimens and a considerable number of important specimens, chiefly from the collection of the United States Exploring Expedition. All these were thoroughly cleaned and made into study skins furnishing enough work to keep the taxidermists busy for some time. The types recovered were as follows: *Thalassidroma plumbea*, *Sterna antarctica*, *Caprimulgus conterminus*, *Rallus luridus*, *Geospiza peruviansis*, all described by Peale, *Ectopistes marginella* Woodhouse, and *Anser rossi* Baird. Incidental to other curatorial work, a number of unnumbered skins which at some early date had been distributed in the collection without having been catalogued and numbered were picked out and the deficiency supplied.

In the division of reptiles the annual cleaning of the shelves and examination of all the jars in the collection for the purpose of replenishing the alcohol was nearly completed. The transfer of Mr. Godbold early in March to another office resulted in a temporary discontinuation of the card catalogue of the specimens.

Division of Fishes.—Both the upper and lower floors of the storage have been thoroughly gone over, the containers refilled where necessary, bottles and shelves cleaned, many labels restored, and, where necessary, specimens changed to more suitable receptacles. The addition of the family numbers to the labels has been completed with the exception of a few small collections.

Division of Insects.—In Coleoptera, Diptera, Hemiptera, and Hymenoptera the named collections are being gradually transferred into the tray system of installation. The cork-lined drawers are turned over to the section of Lepidoptera when emptied by this proc-

ess, considerable progress having been made during the year. Thus in Diptera about 100 drawers have been arranged in the new system. In the section of Hymenoptera, it was possible to install 21 new temporary but dust-proof cases, which has permitted the rearrangement of much of the unclassified material and eliminated many Schmidt boxes. The new cases are built to hold 12 regular Museum drawers and are placed on top of the permanent steel cases. The unclassified material has been assembled and condensed so it can be examined critically and placed where it belongs. The cynipoid gall wasps have all been assembled by Mr. L. H. Weld. All of the chalcids have been assembled, largely due to the activities of Mr. Gahan, and Mrs. C. J. Weld has started to arrange a large portion of the members of the family Chalcididae. The bees have been brought together in one named series by the assistance of Prof. T. D. A. Cockerell, of the University of Colorado, whose help has been of the greatest value.

In the division of marine invertebrates all the collections have been overhauled and as far as possible put in order, and solutions, containers, and labels renewed in all cases where necessary. The sorting of mixed small mollusk material has been continued, much of it arranged and blank labelled ready for registration and specific identification. Sorting of the miscellaneous alcoholic invertebrates into component groups has been continued. The segregating of the echinoderms from the rest of the marine invertebrates, entails the shifting of the entire alcoholic storage, exclusive of mollusks, which is under way. This was necessitated by the creation of the new division of echinoderms. The cataloguing of the various groups of alcoholic invertebrates has been continued. The material has been placed in its systematic position in the storage stacks. In the mollusks the rearranging of the East Coast collections has been continued, the Gastropods have been completed, and the work on the Pelecypods is well under way. The Scaphopods have not only been rearranged, but a report thereon has been prepared by Mr. John B. Henderson.

As the division of echinoderms was established only in April, 1920, the work of removal of the dried collections to the new location has occupied most of the time. Of the alcoholic material only the crinoids have as yet been moved, and their rearrangement is still unfinished. Owing to other pressing work and lack of assistance, the readjustment of the collections has of necessity been delayed.

Mr. W. R. Maxon, associate curator, reports that in the division of plants the curatorial work connected with the upkeep and increase of the National Herbarium has progressed satisfactorily during the past fiscal year. In particular the return of Mr. Leonard and the employment of Mr. Killip as aid have been of material assistance in routine matters. In addition to the distribution of a considerable

accumulation of mounted specimens, the material of several large genera has been rearranged and put thoroughly in order. A distribution of specimens recently mounted and recorded is planned for the present summer, in so far as this will be possible in view of the limited amount of room available in the present linear sequence of cases. The difficulty of securing mounters has been less acute than during the preceding year, and in consequence about 18,000 specimens have been mounted, chiefly by contract. Mounting of specimens is still in arrears, however, between 12,000 and 15,000 specimens remaining unmounted at the present time. A considerable portion of these will be mounted under requisitions outstanding. The work of segregating type and duplicate type specimens from the main herbarium has been continued at intervals, and 9,477 specimens have now been distinctively labeled, catalogued, placed in individual covers, and added to the so-called type herbarium.

The general character of the work of the preparators has been indicated above in connection with the report on the work done with regard to the exhibition series. Besides this the taxidermists and other preparators did much work for the various divisions on the study material. Thus 49 mammals, birds, and reptiles, some of them quite large, received in the flesh from the National Zoological Park or other sources, were skinned and prepared. A large number of older mounted specimens of the same orders not desired in the exhibition series were made over into study skins, among them many important species, including types, as related above. A number of older specimens sent out to educational institutions had also to be gone over, cleaned, and packed. In addition to the specimens mounted and placed on exhibition there were also a number of unfinished mounts in various stages of completeness at the end of the year. Mr. W. L. Brown finished the mounting of the West African buffalo and in addition tanned or worked up 66 mammal skins, including gorillas, chimpanzees, buffaloes, etc. Owing to the protracted absence on account of failing health of the bird taxidermist, Mr. Brown was also intrusted with a considerable amount of work in mounting and dismounting birds. Mr. George Marshall was mostly engaged in mounting smaller mammals and in repair work. Mr. Nelson R. Wood, the bird taxidermist, was absent on account of ill health for four and a half months. The most difficult cases of mounting and remounting old and valuable specimens are reserved for his skill, and 10 birds were added by him to the exhibition series, while 165 of the most precious historical specimens were dismounted for the type and study series. Mr. J. W. Scollick, the osteologist, was mostly engaged in attending to the vast accumulation of bird skeletons, of which he cleaned not less than 156, two mammal skeletons, and one snake skull. Under his supervision 51 mammal skeletons,

211 large mammal skulls, and one set of leg bones were cleaned. Mr. C. E. Mirguet, preparator, attended to most of the work involved in the hanging of the game heads in the main stairway. He also had the immediate supervision of the cleaning of the large exhibition groups and similar work. The mounting of a large monitor lizard for the exhibition series as well as a large amount of preparatorial work for the study series of reptiles, particularly turtles, fell to his share. Mr. C. R. W. Aschemeier, after his return from Africa with the Collins-Garner expedition, has been assisting Mr. Brown and Mr. Marshall and has made up 132 mammal skins and 5 bird skins. It should be noted that the time of the taxidermists, preparators, and cleaners early in the year was taken up with the work of adjusting and fitting up their new quarters after the removal of the shops from the old stable and the shed south of the Smithsonian building. Mr. William Palmer was chiefly occupied with the rearrangement of the District of Columbia exhibit and the preparatorial work incidental thereto, including the mounting of several mammals and birds, and casts of amphibians. He also attended to the rearrangement of the general bird exhibit. He also spent considerable time in securing and verifying data for new labels for a considerable part of the mammal collections, a task requiring much research in the older records. He was sent to Jacksonville, Florida, twice to report upon and later to attend to the packing and shipping of a whale skeleton purchased and presented to the Museum by the Miami Aquarium Association through its president, Mr. James A. Allison. As it had not been received in Washington until after the expiration of the fiscal year, this notable addition will be dealt with in next year's report.

The present condition of the collections, in spite of considerable crowding in certain lines must, on the whole, be characterized as very good. Allusion has already been made to the fact that a considerable part of the exhibition series is stored away and inaccessible to the public. This condition is not conducive to its best conservation, as the crowded location of the cases makes a close and frequent inspection difficult. They have been attended to, disinfected, and repaired as occasion demanded. The reports from the divisions also indicate satisfactory conditions. It should be borne in mind that this favorable result is to a great extent due to the fact that it has been possible during the last few years to keep up with the work and to properly care for the collections partly on account of the lessened influx of specimens during the war, partly because it has been possible in those years to employ temporary assistance. The greater activity which now has set in is threatening to set us back as we were before, unless additional assistance can be had. This is particularly true of the two large divisions, the marine invertebrates

and the insects. The exact condition of the echinoderm collections will not be known definitely until the new curator has had time to thoroughly overhaul the collection.

The present condition of the herbarium, in the words of the associate curator, is in general as satisfactory as might be expected considering the smallness of the staff and the numerous and varied duties involved. The crowding of specimens in the general herbarium will necessarily remain acute until additional space has been provided by the balcony planned for the west end of the herbarium hall. The erection of such a balcony has been accepted as the most feasible means of providing additional case room, and it is hoped that this project may be taken up and speedily pushed to completion. The cryptogamic herbaria remain practically as at the close of the last fiscal year. Following the practice of previous years in distributing duplicates as promptly as they can be sent out to advantage or circumstances will permit, there is no considerable accumulation of duplicate material. The specimens on hand at the present time are mainly valuable material from Alaska, British East Africa, Panama, and Mexico, aggregating about 20,000 specimens and filling about ten unit cases separate from the herbarium proper. These are nearly all unmounted. A considerable portion will be sent out during the coming year.

RESEARCHES FOR THE BENEFIT OF THE MUSEUM.

The appended bibliography to some extent reflects the scientific activities of the Museum staff, inasmuch as it enumerates the publications that have actually been published during the year. An enormous amount of research work does not find expression in this way and, in fact, does not find expression except on the labels of the specimens in the collections and on the pages of the Museum catalogues. A great number of specimens of the more common and conspicuous species, especially of our own flora and fauna, may be identified off-hand at a mere glance or a rapid examination, but with the increasing influx of material from distant and unexplored regions, it often requires long and weary search through a technical literature scattered through innumerable scientific books, periodicals, and transactions of learned societies and published in many and often little known languages. Moreover, not only are the collectors devoting more time and labor to the search for the more minute objects, but modern research tends toward more and more refinement, and extends to more and more minute structures. Where formerly a macroscopic inspection or a small hand lens was considered sufficient, a greater power or the assistance of the binocular microscope is now required. In many cases it is even necessary for the Museum worker to actually monograph a whole group before he is enabled to identify his collection, work which does not always lead to publication, at

least not immediately. It is very rarely that any of the members of the staff can devote himself exclusively to one subject at the time, and many of their investigations require years of accumulation of specimens and observations before they can be finished.

Division by division the scientific work of the staff which has resulted in or is expected to result in publication may be summarized as follows:

Mr. Gerrit S. Miller, jr., found it impracticable to devote much time to original investigation during the past year. Dr. Robert Ridgway, curator of birds, who had been detailed for the purpose, continued his work on the uncompleted portion of Bulletin 50, *The Birds of North and Middle America*. Volume 9 is now in preparation and of the groups included the Phasianidae and Odontophoridae have received special attention, while the synonymy and references to literature relating to the rest of the volume have demanded an unusual proportion of the time. It is hoped that very soon the remaining groups to be included in this part may be taken in hand and the volume completed. Dr. Charles W. Richmond, associate curator, in collaboration with Mr. B. H. Swales, continued to gather data for a report on the birds of the Island of Haiti. Much time and study was also devoted to the type specimens with the view of preparing, also with the assistance of Mr. Swales, a list of the type specimens of birds in the National Museum. Mr. J. H. Riley, aid, continued his studies of the Celebes collection made by Mr. H. C. Raven. In the division of reptiles, Dr. Leonhard Stejneger continued his study of the turtles, especially those of Mexico. Dr. F. N. Blanchard, aid, completed his monograph of the king snakes during the year, and the manuscript is now in the hands of the Public Printer.

Mr. B. A. Bean, assistant curator of fishes, has devoted some time to the study of the fishes of the Wilkes Exploring Expedition, in conjunction with Mr. Henry W. Fowler, of the Academy of Natural Sciences, Philadelphia, Pennsylvania, and a paper by them on a collection of Chinese fishes made by Dr. N. Gist Gee has been submitted and is now in press for the *Museum Proceedings*.

In the division of insects the associate curator, Dr. J. M. Aldrich, has studied the genera and species of the dipterous family Anthomyiidae more than any other during the year. He has several incomplete papers on hand, the principal one having been delayed by the attempt to get some information regarding types in foreign museums. Mr. A. N. Caudell, custodian of Orthoptera has prepared and published a study of structure of the rare order Zoraptera. Other members of the honorary staff have been studying the classification of the groups committed to them, and nearly all have published descriptions of new genera and species.

Dr. William H. Dall, honorary curator of mollusks, has completed his "Annotated List of the recent Brachiopoda in the collection of the United States National Museum with descriptions of thirty-three new forms." The summary of the North West coast marine mollusk fauna from the Polar Sea to San Diego, California, was finished and the galley proof read. A report on the marine mollusk fauna of the Hawaiian Islands is begun and in progress. Mr. John B. Henderson, regent of the Smithsonian Institution, has continued his studies of the East American Mollusca, devoting the greater part of each day to assembling in one large study series the large accumulation of mollusks from the West Atlantic received by the Museum during the last thirty years, uniting these with the original East Coast collection. This is a continuation of work begun last year, and is still in progress. His monograph of the Western Atlantic Scaphopoda is now going through press and will be issued shortly. He is also joint author with Dr. Paul Bartsch, of a new classification of the American "Cyclostomidae," now in press. He has likewise cooperated with the curator in the continuation of the work on a report on the mollusk fauna of the Beaufort, North Carolina region, for the U. S. Bureau of Fisheries. He and Dr. Carlos de la Torre, of Havana, Cuba, are co-authors in a report on new operculate land-shells of Cuba, which is about to go to press. He has made slight progress in his monograph of the American Tectibranchs. Dr. Mary J. Rathbun has completed a report on the brachyuran crabs of the American Museum of Natural History Congo Expedition, 1909-1915, which numbers nearly 3,000 specimens. She has also completed a report on the brachyuran crabs of the expedition by the State University of Iowa to Barbados and Antigua in 1918; and has continued work on the bulletin on the spider crabs of America. She is preparing a report on the brachyrhynchous crabs obtained by the Australian Fisheries Investigation ship *Endearour*, the second paper in the series on decapods, to be published by the Commonwealth of Australia. The curator, in addition to the time given to executive work, has been engaged in the preparation of reports on various groups of mollusks, as shown by his bibliography. In addition several other papers are now going through press. He has also continued his researches on the Nudibranch mollusks of the Philippines; also, on another monograph of the Caecidae of the West Coast of America. He likewise continued his work upon the marine mollusks of the Mazatlanian faunal area. The report on the mollusks of the region about Beaufort, North Carolina, is nearly completed. Continued observations and studies in connection with his Cerion experiments have been made. He has also begun a comprehensive survey of the American shipworms.

Mr. Waldo L. Schmitt, associate curator, has continued work upon his reports on the Macrura and Anomura of the American Museum Congo Expedition, and the State University of Iowa Barbados-Antigua Expedition. The various other minor researches of previous years have been continued as time has permitted. In addition, studies have been undertaken upon a large collection of specimens of the family Pencidae submitted to this Institution by the Australian Museum for report, and at the same time the material belonging to this same group contained in the Museum collections is being worked up. His only report published during the year is that upon the Schizopod Crustaceans of the Canadian Arctic Expedition. Mr. William B. Marshall, assistant curator, in the time he has found available has continued his study of the pearly fresh water mussels, especially the Diplodons and Anodontites. His report on "New species of fresh-water shells from Guatemala" is now going through press. Another on "Three new Naiads from Uruguay" is completed, except for illustrations. Mr. C. R. Shoemaker, aid, has devoted the time available for research to working up and cataloguing the unidentified collection of Amphipod crustaceans and incorporating it with the permanent collections. He has also determined the various collections of Amphipods transmitted for report by various institutions and individuals, in connection with which two reports, "The Amphipods of the Canadian Arctic Expedition" and "The Amphipods of the Congo Expedition of the American Museum of Natural History," are now going through press. Miss Pearl L. Boone, aid, has continued her studies of the Isopods when opportunity offered, and completed a number of papers describing new genera and species, now going through the press or ready for the printer. She has also in preparation a paper entitled "Studies of South American Isopods" and a monographic report on the Cephalopod mollusks of the *Albatross* Philippine Expedition. Dr. Charles W. Stiles, Assistant Surgeon General and custodian of the helminthological collections, Dr. B. H. Ransom, assistant custodian, and Dr. P. E. Garrison, U. S. N., have continued their investigations on the parasites of man and other animals. Dr. T. Wayland Vaughan, custodian of Madreporarian corals, has devoted the major portion of his time to geological researches in connection with which he has consulted the recent coral collections of the U. S. National Museum. Mr. Harry K. Harring, custodian of Rotatoria, has continued his studies of the rotifers of the District of Columbia and Wisconsin, and other states.

Mr. Austin H. Clark, curator of echinoderms, reexamined a large part of the collection of Atlantic crinoids in connection with his forthcoming report upon the crinoids of the Danish *Ingolf* expedition, which will take the form of a treatise on the

crinoids of the Atlantic basin and the adjacent seas similar in scope to his memoir on the crinoids of the Indo-Pacific published in the *Siboga* reports. Work was also continued on Part 3 of Bulletin 83, which will contain the systematic account of the comatulids.

Special investigations which have been begun, continued or completed during the year in the division of plants are as follows: Mr. Frederick V. Coville, curator, has continued his investigations upon the breeding and propagation of blueberries (*Vaccinium*), making use of the material in the National Herbarium as in previous years. Dr. J. N. Rose, associate curator, has continued his studies of the *Cactaceae*, in collaboration with Dr. N. L. Britton, Director-in-Chief of the New York Botanical Garden, work which has been under way since 1911 under the auspices of the Carnegie Institution of Washington. Volume 1 of the *Cactaceae* was published in 1918. Volume 2 will appear in July or August, 1920. Of the two remaining volumes, manuscript for Volume 3 has been completed and submitted for publication, and work upon Volume 4 is well advanced. Doctor Rose is engaged, also, in identifying his Ecuadorean collection of 1918, with a view to publishing a complete report upon the collection as a whole; Mr. William R. Maxon, associate curator, has continued his studies of the ferns of tropical America and of the Pacific coast region of the United States, manuscript of the latter being nearly complete. Several short papers have been published. The Jamaican field work elsewhere mentioned was undertaken largely to provide additional material for use in connection with a descriptive account of the pteridophyta of Jamaica, to be published by the British Museum; Mr. Paul C. Standley, assistant curator, continuing his studies upon the trees and shrubs of Mexico, has completed manuscript for a second part of the volume. His collections from Glacier National Park, mentioned elsewhere, have served as the basis for two manuscripts upon the flora of that region, both submitted for publication, the first a popular account to be published by the National Park Service, the second a technical account to be published by the National Museum. In collaboration with Mr. Frederick V. Coville, he is engaged also upon the Flora of Alaska, a part of the report of the Harriman Alaska Expedition; Mr. Emery C. Leonard, aid, has been engaged in a revision of the genus *Scutellaria*; Mr. Ellsworth P. Killip, aid, has undertaken a revision of the tropical North American species of the genus *Passiflora* and has the work well advanced toward completion.

Dr. C. Hart Merriam, associate in zoology, continued his work on North American bears. Mr. N. Hollister, Superintendent of the National Zoological Park, has completed the primates of part 3 of the report on East African mammals in the United States National

Museum (Bulletin 99) based largely on the material collected by the Smithsonian African Expedition under the direction of Col. Theodore Roosevelt, 1909-10, and the Paul J. Rainey African Expedition, 1911-1912. He also made some progress on the Artiodactyla, but is seriously hampered by the present inconvenient arrangement of the specimens on three different floors of the Museum. Dr. O. P. Hay, of the Carnegie Institution of Washington, District of Columbia, has made constant use of the collection in connection with his work on the Pleistocene fauna of North America. Dr. W. W. Graves, of St. Louis, Missouri, spent about a week examining the shoulder blades of the primates and certain other mammals in connection with his study of human scapulae.

Dr. W. L. Abbott, of Philadelphia, Pennsylvania, associate in zoology, examined the birds of Haiti and Santo Domingo in connection with work he had recently done on the island, and with respect to further needs of the Museum. Mr. A. C. Bent, Taunton, Massachusetts, spent three days examining the eggs and terns, and selecting specimens for illustration in the next bulletin on life histories of North American birds. Mr. Francis Harper, of the Biological Survey, worked out the identifications of various specimens collected in France, and of diving petrels. Dr. Alexander Wetmore, also of the Survey, continued his volunteer work among the skeletons and alcoholics, particularly the former, and in making special determinations of skeletal material as needed by the Museum. Dr. H. C. Oberholser, of the same survey, continued to determine specimens in the Museum collections, both in the North American series and in the Malayan material collected by Dr. W. L. Abbott and others. Mr. W. H. Osgood, Field Museum of Natural History, Chicago, Illinois, was instrumental in furnishing information that led to the recovery of the important type material of birds from the Chicago Academy of Sciences, mentioned above.

Dr. Thomas Barbour, of the Museum of Comparative Zoology, during several visits examined and identified reptiles and amphibians in connection with his studies of West Indian herpetology. Mr. E. R. Dunn, of the same museum, identified a number of salamanders during his visits to the Museum, and Mr. G. K. Noble, of the American Museum of Natural History, New York, was likewise helpful in connection with South American amphibians.

In the division of fishes Mr. Walter Koelz examined the white-fishes in connection with his work for the U. S. Bureau of Fisheries. Doctor Kendall, of the same bureau, examined certain Scorpaenoid fishes of the west coast for the purpose of more certain identification of specimens collected by Doctor Coker in Peru. Dr. Carl H. Eigenmann, State University of Indiana, determined 47 specimens of fishes collected in South America by Dr. J. N. Rose.

The division of insects has been benefited by the work of many workers not officially connected with the Museum. Thus Mrs. C. J. Weld has been a voluntary worker in Hymenoptera and has given much time to the classification of the family Chalcididae. Prof. T. D. A. Cockerell, of the University of Colorado, has identified many species of bees within the year. Mr. Nathan Banks, of the Museum of Comparative Zoology at Harvard University, and Dr. R. V. Chamberlin, of the same institution, have identified spiders and myriopods, respectively. Prof. A. L. Malander, Pullman, Washington, has returned with determinations many species of flies of the family Borboridae, sent him in previous years. C. H. Kennedy, Cornell University, has determined nymphs of Odonata. Considerable work has been done by many members of the staff of the Bureau of Entomology, the following being particularly mentioned: Mr. R. A. Cushman has continued his investigations of the Ichneumon flies and has also undertaken the identification of Philippine Ichneumonidae collected by Mr. C. F. Baker and from the material already received has named and described a number of species. Mr. Robert M. Fouts spent the summer of 1919 working under the direction of Mr. A. B. Gahan on the Serphoid parasites, especially those of the family Platygasteridae, while Mr. Gahan has continued to spend most of his time working on Chalcids. He also supervised the work of Mr. C. F. W. Musebeck on the Braconid genus *Apanteles*. Dr. William M. Mann has continued his work on ants and has completed his work on the collections he made in the Fiji Islands and the West Indies. Reports on these have been submitted for publication. The revision of the North American Phytophagous chalcid-flies of the genus *Harmolita* by Messrs. W. J. Phillips and W. T. Emery has been published and all the material incorporated in the collection. Mr. P. H. Timberlake finished his revision of the genera *Homalotylus* and *Isodromus* which has been published by the Museum. Mr. L. H. Weld prepared a manuscript which has been submitted for publication, on the subterranean American Cynipid galls on oaks.

The division of marine invertebrates is particularly dependent upon specialists mostly connected with institutions located outside of Washington, owing to the insufficiency of the Museum staff. Whenever material in certain groups arrives for determination of deposit, it is sent to men engaged in research upon these special lines. While many of those enumerated below have not received new material during the year, everyone either has in his possession some Museum collections transmitted in previous years, or a report on such material is now in press. This voluntary staff for the fiscal year consisted of: Dr. Henry B. Bigelow (Medusae, Ctenophora), Dr. L. R. Cary (Aleyonarians), Dr. R. V. Chamberlin (Gephyrea), Dr.

Wesley R. Coe (Nemerteans), Dr. Leon J. Cole (Pycnogonidas), Dr. Joseph A. Cushman (Foraminifera), Prof. G. S. Dodds (Freshwater Entomostraca), Dr. Max Ellis (Discodrilids), Dr. C. O. Esterly (Free-swimming Copepods), Dr. Walter Faxon (Crayfishes), Prof. Ernest Carroll Faust (Trematodes), Dr. Maurice C. Hall (Discodrilids), Mr. Sanji Hōzawa (Calcareous sponges), Dr. A. T. Huntsman (Ascidians), Prof. Chauncey Juday (Daphniidae), Dr. C. Dwight Marsh (Free-swimming Copepods), Miss Ruth Marshall (Watermites), Dr. Alfred G. Mayor (Scyphomedusae), Dr. Maynard M. Metcalf (Salpa and Pyrosoma), Dr. J. Percy Moore (Annelids, Leeches), Dr. Charles C. Nutting (Hydroids), Dr. Raymond C. Osburn (Bryozoa), Dr. Henry A. Pilsbry (Barnacles, Mollusks), Mr. Madoka Sasaki (Cephalopod Mollusks), Prof. Frank Smith (Earthworms), Dr. Victor Sterki (Sphaeriidae), Prof. Harry B. Torrey (Actinians), Dr. Aaron L. Treadwell (Annelids), Dr. Willard G. Van Name (Ascidians), Prof. L. B. Walton (Planarians), Dr. Paul Welch (Enchytraeidae), Dr. Charles B. Wilson (Parasitic Copepods).

The study of the tertiary fossil mollusks is so closely connected with that of recent ones that the paleontologists of the Geological Survey are spending much time in studying the latter in our collections. Thus Dr. C. W. Cook spent several months in the division consulting the recent mollusk collections in connection with his studies of the Eocene and Oligocene faunas, continued in the intervals of field work for the Geological Survey. Dr. W. P. Woodring has spent the greater part of the year in the division consulting the recent mollusk collections in connection with his studies of the Miocene faunas of Jamaica and of the Dominican Republic. Dr. Julia A. Gardner has resumed her geological studies since her return from France returning to her desk in the Museum in April, consulting the recent mollusk collections in connection with her studies of the Oligocene faunas.

The assistance of specialists in the various subdivisions of the echinoderms has been similarly taken advantage of as in the other marine invertebrates, and various Museum collections are in their hands. The more notable are: Dr. Hubert Lyman Clark (Philippine Holothurians), Dr. Theodor Mortensen (Philippine Echinoids), Dr. Joseph Pearson (East Indian Holothurians), Prof. Walter K. Fisher (North Pacific Starfishes), Prof. Addison E. Verrill (various Starfishes).

During the year the National Herbarium has been consulted frequently, as heretofore, by many members of the scientific staffs of the Department of Agriculture, Dr. S. F. Blake and Mr. C. V. Piper, of the Bureau of Plant Industry, having given considerable time to critical work upon several groups.

Correspondents whose co-operation has resulted in adding to the value of material in the division of plants are without exception those to whom specimens have been transmitted for critical study as detailed further on. As a matter of fact, it is in most instances impossible to discriminate between the benefits accruing to the National Museum by such researches and those derived by other institutions.

RESEARCHES ELSEWHERE AIDED BY MUSEUM MATERIAL.

The National Museum considers it not only a duty, but a privilege, whenever it can be done without jeopardizing the safety of the collections or interfering seriously with important work already undertaken, to lend its material to scientific investigators in this and other countries. This liberal policy, which in most instances is cordially reciprocated, is abundantly taken advantage of, as the details below will show. The laboratories and study series are similarly open to all research students who visit the capital for the purpose of examining specimens or investigating means and methods, and the curators are always willing to assist to the extent of their ability.

The following list of visitors who have availed themselves of these privileges testifies to the degree to which the opportunity is appreciated. The bird and egg collections were examined by Harry B. Bailey, Newport News, Virginia; Mr. Alfred M. Bailey, New Orleans, Louisiana; Dr. F. E. Blaauw, of Holland; Mr. James P. Chapin, American Museum of Natural History, New York City; Mr. H. K. Coale and Mr. Colin C. Sanborn, of Highland Park, and Chicago, Illinois; Dr. Jonathan Dwight, New York; Mr. H. I. Hartshorn, New York; Prof. Tamiji Kawamura, Imperial University, Kyoto, Japan; Mr. Walter Koelz, Bureau of Fisheries, Washington; Messrs. W. H. Osgood and Conover, of Chicago, Illinois; Lieut. James L. Peters, Cambridge, Massachusetts; Dr. John C. Phillips, Wenham, Massachusetts; Capt. Ernest Samusson, U. S. A.; Dr. L. C. Sanford, New Haven, Connecticut; Mr. W. L. Sclater, London, England; Mr. Charles Sheldon, Washington; Mr. Harry S. Swarth, Berkeley, California; Mr. W. E. Clyde Todd, Pittsburgh, Pennsylvania; Mr. Edward Arnold, Montreal, Canada; Mr. Wilson C. Hanna, Colton, California; Mr. Nathan Moran, San Francisco, California; Mr. G. R. Rossignol, Savannah, Georgia; Mr. John M. Sommer, Baltimore, Maryland; Dr. R. W. Shufeldt, Washington City. Reptiles and amphibians were examined by several of the members of the American Society of Ichthyologists and Herpetologists during the annual meeting which was held at the Museum in May, among them Miss Crystal Thompson, Curator of the Museum of Amherst College. Miss Cora Reeves, Soochow, China, visited the division of fishes for the purpose of identifying colored drawings

of fishes made by a Chinese artist. A number of outside entomologists studied various groups of insects: Dr. G. Crampton, Massachusetts Agricultural College; Dr. and Mrs. C. Bonne, of Paramaribo; Mr. Ray T. Webber, Beverly, Massachusetts; Mr. E. D. Ball, Ames, Iowa (now Assistant Secretary of Agriculture); Dr. William Barnes, Decatur, Illinois, and S. E. Cassino, Salem, Massachusetts; Prof. H. F. Wickham, Iowa City, Iowa; H. C. Fall, Tyngsboro, Massachusetts; R. W. Dawson, Lincoln, Nebraska; S. W. Frost, Arendtsville, Pennsylvania; Dr. A. H. Sturtevant, of the genetics division of the Rockefeller Institution; Prof. James S. Hine, University of Ohio. Mollusks were studied by Mr. and Mrs. T. S. Oldroyd, of Stanford University, California and by Mr. Walter F. Webb, Rochester, New York. Dr. W. G. Van Name made a preliminary survey of the Museum collections of east American and West Indian Ascidians. Dr. A. G. Huntsman, Toronto, Canada, examined crayfishes. The helminthological collections were utilized by Capt. R. Danbury, of the British Board of Agriculture; Dr. John Scott, of the Wyoming Agricultural College, and Dr. S. Yokogawa, of Korea. Among the professional botanists from other cities who have worked in the herbarium during the year are the following: Mrs. Adele Lewis Grant, of the Missouri Botanical Garden, St. Louis, Missouri; Mr. Otón Jiménez, San José, Costa Rica; Prof. J. F. Rock, formerly of the College of Hawaii, Honolulu, Hawaii; Dr. L. H. Bailey, Ithaca, New York; Dr. N. L. Britton, Dr. H. H. Rusby, Dr. J. H. Barnhart, Dr. Fred J. Seaver, and Dr. Francis W. Pennell, of the New York Botanical Garden, Bronx Park, New York City.

Requests for loan of the specimens as an aid in the study of their own material were received from a large number of outside investigators and institutions. Mammals were sent to Dr. A. J. Allen, Mr. H. E. Anthony, and Mr. H. Lang, of the American Museum of Natural History, New York City, and to Dr. J. Grinnell, of the Museum of Vertebrate Zoology, University of California. Birds were loaned to Dr. Frank M. Chapman and Mr. W. de W. Miller, of the American Museum of Natural History; Mr. R. C. McGregor, of Bureau of Science, Manila, Philippine Islands; Mr. Joseph Mailliard, of the California Academy of Sciences, San Francisco, California; Mr. W. E. Clyde Todd, of the Carnegie Museum, Pittsburgh, Pennsylvania; Mr. Henry K. Coale, Highland Park, Illinois; Dr. Jonathan Dwight, New York City; Mr. H. C. Robinson and Mr. C. B. Kloss, of the Federated Malay States Museum, Kuala Lumpur, Federated Malay States; Mr. Charles B. Cory, of the Field Museum of Natural History, Chicago, Illinois; Mr. Outram Bangs and Thomas E. Penard, of the Museum of Comparative Zoology, Cambridge, Massachusetts; Mr. J. Eugene Law, of the Museum of Vertebrate

Zoology, University of California; Dr. R. W. Shufeldt, Washington City; and Mr. Arthur T. Wayne, Mount Pleasant, South Carolina. From the division of reptiles and batrachians specimens were loaned to Miss M. C. Dickerson and Mr. G. K. Noble, of the American Museum of Natural History; Dr. Thomas Barbour, and Mr. Emmett R. Dunn, of the Museum of Comparative Zoology; and to Dr. F. N. Blanchard, of the Museum of the University of Michigan. One specimen of fish was forwarded to Dr. Einar Koefoed, of the Zoological Museum, Copenhagen, Denmark. A larger number of insects than usual were sent to outside entomologists, the larger shipments being directed to Dr. F. F. Laidlaw, Hyesfield, Devon, England (dragonflies); Prof. James S. Hine, Columbus, Ohio (Diptera); Mr. L. H. Taylor, Bussey Institution, Boston, Massachusetts (cuckoo wasps); Mr. Clarence E. Mickel, University of Nebraska (velvet ants); Mr. H. M. Parshley, Smith College, Northampton, Massachusetts (Hemiptera); and Mr. J. R. Malloch, Urbana, Illinois (Diptera). Marine invertebrates were sent to Dr. L. A. Borradaile, Selwyn College, Cambridge, England (crustaceans); Dr. Leo J. Cole, University of Wisconsin (pycnogonids); Mr. Frits Johansen, Geological Survey, Ottawa, Canada (phyllopods); and to Dr. H. A. Pilsbry, Academy of Natural Sciences, Philadelphia, Pennsylvania (African mollusks). The number of specimens of plants lent to institutions or to individuals outside of Washington for study during the year was considerably larger than for the past two years, namely, 4,482. Of these the following deserve special notice: 222 specimens of *Polypodium* lent to the Gray Herbarium for study by Mr. C. A. Weatherby, who is engaged in a monographic study of the difficult group of *Polypodium lanceolatum*; 44 specimens of *Mikania* lent to the Gray Herbarium for study by Prof. B. L. Robinson, who is engaged upon a revision of the South American members of this genus; 175 specimens of *Rubiaceae* lent to the College of Hawaii, Honolulu, Hawaiian Islands, for study by Prof. J. F. Rock, for use in connection with his monographic study of the Hawaiian members of this family; 135 North American specimens of *Carex* lent to Mr. K. K. Mackenzie, Maplewood, New Jersey, for study in connection with his monographic work upon the genus *Carex*; 128 specimens of *Scrophulariaceae* lent to the Missouri Botanical Garden for study by Mrs. Adele Lewis Grant, chiefly in connection with a monograph of the North American species of *Mimulus*; 541 specimens of *Lesquerella* and *Synthlipsis* lent to the Missouri Botanical Garden for study by Mr. E. B. Payson, who is engaged upon a revision of these two genera; 280 specimens lent to the New York Botanical Garden for study by Dr. P. A. Rydberg, the greater part of these belonging to the difficult

genus *Arnica*, under revision by Doctor Rydberg; 310 specimens, chiefly *Indigofera*, lent to the New York Botanical Garden for monographic study by Doctor Rydberg; 1,518 specimens of Scrophulariaceae, members of the genus *Veronica*, lent to the New York Botanical Garden for monographic study by Dr. F. W. Pennell; and 255 specimens of *Robinia*, *Coursetia*, and related genera, lent to the New York Botanical Garden for monographic study by Doctor Rydberg.

DISTRIBUTION AND EXCHANGE OF SPECIMENS.

Duplicates distributed to schools, colleges, institutions, and individuals aggregated 1,874 specimens, of which 1,044 were in 6 sets of 174 mollusks, regularly prepared for this purpose, and one set of 91 fishes similarly prepared.

During the early part of 1919 the associate curator of insects had one of the preparators collect a considerable quantity of the seventeen-year cicada, then abundant, knowing that it does not occur in many parts of the country. Applications for this material were received from many colleges and specimens illustrating nymph, nymph cases, and adults (100 specimens) were sent to eight.

Exchanges to the number of 13,681 specimens were arranged, 12,918 being botanical. Of the 763 zoological specimens 419 bird skins from Costa Rica, Celebes, and the Philippines were sent to the American Museum of Natural History, and 170 bird skins from Celebes to the Museum of Comparative Zoology. The remainder were disposed of in exchange with various institutions and individuals. The largest exchanges of plants were sent to the Botanical Museum of the University at Copenhagen, Denmark, and the New York Botanical Garden. A large number of sets of 500 and 300 specimens each were disposed of to 17 different museums and botanical gardens in this country and abroad.

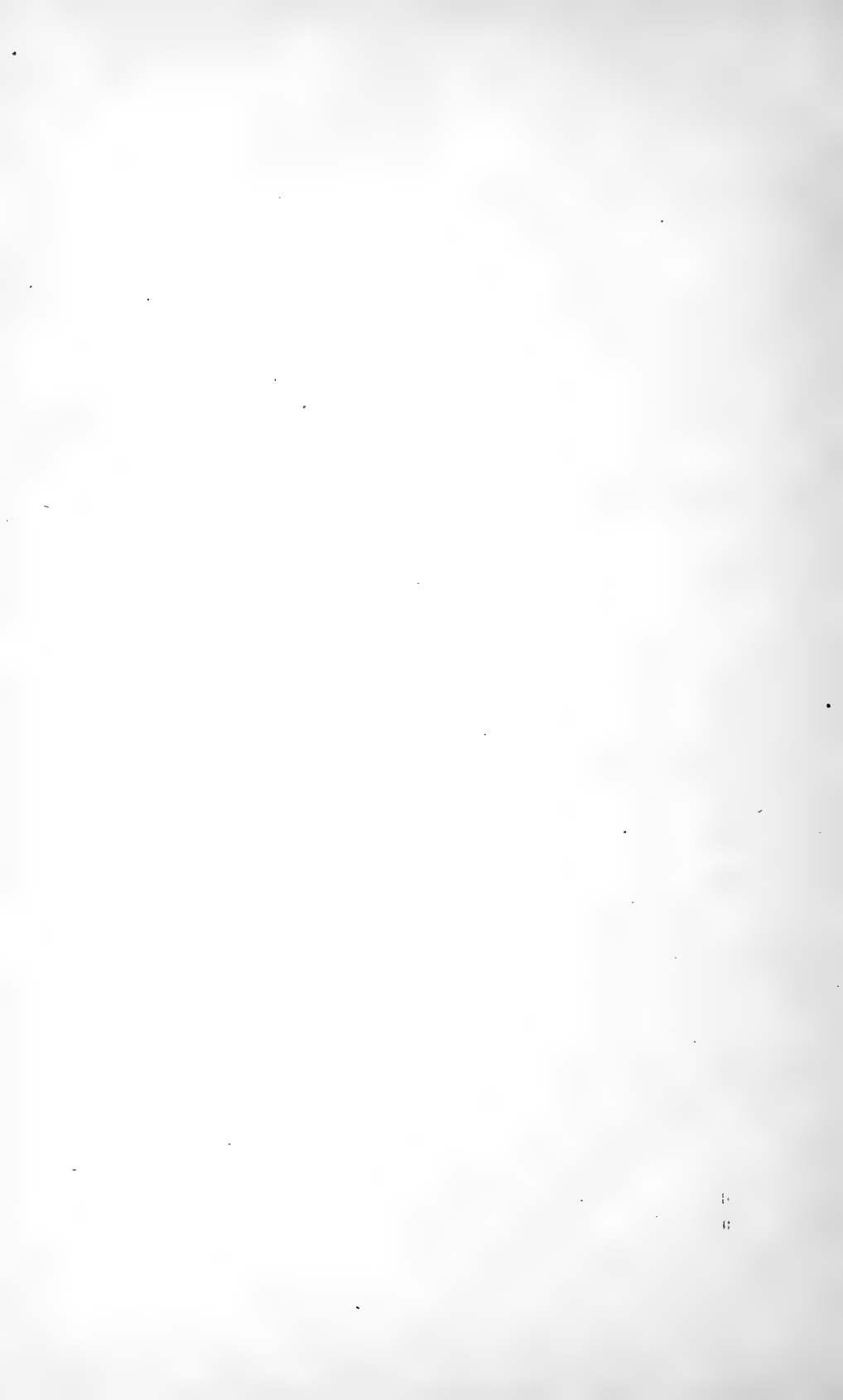
TOTAL NUMBER OF SPECIMENS IN DEPARTMENT OF BIOLOGY, INCLUDING NUMBER OF DUPLICATE SPECIMENS.

The figures given below are not based upon actual counts, but represent more or less accurate estimates made from time to time. The total is probably approximately correct. It includes about 180,000 duplicates and superfluous specimens, of which a large number are available for distribution and exchanges.

Duplicates have not been segregated in several of the divisions because of lack of help, but especially because so comparatively little of the material has as yet been monographically worked over. It should also be remarked that this census does not include the collections of mammals and birds in the custody of the Biological Survey.

In the following table the figures in parenthesis indicate the duplicates:

Division of Mammals	76, 015	
“ “ Birds	284, 823	(9, 583)
“ “ Reptiles	73, 268	
“ “ Fishes	525, 630	(79, 681)
“ “ Insects	2, 170, 529	
“ “ Marine Invertebrates	2, 110, 632	(21, 000)
“ “ Echinoderms	155, 000	(50, 000)
“ “ Plants	1, 065, 000	(20, 000)
<hr/>		
Total	6, 460, 897	(180, 264)



REPORT ON THE DEPARTMENT OF GEOLOGY,

By GEORGE P. MERRILL, *Head Curator.*

The period covered by this report has been one of very considerable activity, although the visible results are not great owing to the fact that a large portion of the time was devoted to the study series and perfection of records.

Changes in organization or staff.—With the exception of the resignation of Dr. W. T. Schaller, there have been no changes of importance in the organization or personnel of the department during the year. Although Doctor Schaller's position was that of mineralogist and chemist of the United States Geological Survey, he had for some years served as honorary custodian of the collection of gems and precious stones, and in this way had rendered great service in securing much new material. His resignation is, therefore, to be greatly deplored.

Accessions.—Reports from all divisions of the department show a marked increase in the amount of material received during the time covered by this report. The total number of accessions is 180 against 135 for the year previous, with a very decided increase in the number of specimens and their scientific value. Of these accessions, 111 were gifts, 32 transfers, 25 received through exchanges, 2 by collection, 1 as a deposit, and but 9 by purchase. The actual number of specimens received cannot be given for reasons repeatedly stated in previous reports. Much of the material has not, as yet, been unpacked, and moreover, a very considerable amount of that which is received is discarded without record, and in many instances the individual specimens are small, perhaps of microscopic proportions, and their exact number it is not practical to estimate.

Among the accessions of greatest importance mention may be made of gifts comprising ores of the rare metals, particularly of tungsten and molybdenum, secured chiefly through the intervention of Mr. F. L. Hess, honorary custodian of these collections. A sample of wolframite from Bukuka, Siberia, was presented by Mr. C. W. Purington, Vladivostok; a fine, large specimen of gold-tungsten ore showing ferberite associated with sylvanite, by Mr. J. Gillingham Hibbs, Denver, Colorado; two specimens of wolframite embedded in dolomitic limestone, by the Homestake Mining Company, Lead, South Dakota; a large exhibition specimen of high grade molybdenum ore from Questa, New Mexico, by the R. and S. Molybdenum Company;

and a considerable quantity of very pure micaceous molybdenite from Chaffee County, Colorado, by the Molybdenum Mines Company, Denver.

From Mr. M. L. Patterson, manager of the Thabawleik mines, Mergui, Burma, was received a collection of molybdenum, tin, and bismuth ores, including a crystal of cassiterite of unusual size and perfection. A fine specimen of the rare tin mineral cylindrite, from Bolivia, was donated by Messrs. Root and Simpson, Denver, Colorado, and a somewhat unique specimen presented by the Bolivian delegates to the Second Pan-American Financial Conference is a large sheet of native copper from the Viscachani mine, Corocoro, which presents in outline a very perfect similarity to that of the continent of South America. Dr. J. Morgan Clements of New York, traveling in China in the interest of the Federal Trade Commission, has forwarded from time to time materials of exceptional interest in the form of Chinese minerals, including magnesite, talc, asbestos, coal, magnetic iron ore, and the noble serpentine which is so often cut and sold to the unwary as jade.

Mr. Hoyt S. Gale, formerly of the U. S. Geological Survey, has presented the Museum with a very fine series of saline minerals, including thenardite and halite from Chile, and sylvite and associated salts from the Amelie potash mines of Alsace. Rev. N. P. M. Corn of Marshall, North Carolina, through Doctor Schaller, donated some exceptional crystals of monazite, and the Geological Commission of Finland transmitted in exchange granites and other rocks from Finland, and fragments of the Bjurböle meteorite mentioned elsewhere.

To the building stone collection were added five polished slabs of Tennessee marbles, each 2 by 5 feet, gift of the Gray Knox Marble Company, Knoxville, and 12 slabs, each 12 by 12 inches, of miscellaneous American marbles, gift of the Tompkins-Kiel Marble Company, New York.

The meteorite collection has been enriched by the following additions: Two examples of the Colby, Wisconsin, stone, weighing 1,686 and 1,956 grams, received from the Public Museum of the City of Milwaukee, and a 27-gram fragment of the Jerome, Kansas, stone, from Dr. Henry S. Washington, are recorded as gifts. With the exception of these and one purchase, that of a 3,320-gram piece of the Yenberrie, Australia, iron, acquired from Mr. T. Watkin-Brown, Sydney, New South Wales, all other additions to this collection were obtained through exchanges, as follows: A 51-gram piece of the Colby stone, from R. N. Buckstaff, Oshkosh, Wisconsin; two slabs of the Cleveland, Tennessee, iron, from the Academy of Natural Sciences, Philadelphia; a slice weighing 2,003 grams of the Washington County, Kansas, stone and a piece weighing 1,397 grams of the Kesen, Japan, stone, from Ward's Natural Science Establish-

ment, Rochester, New York; samples of three stones, Appley Bridge, Mornans, and Ogi, from the British Museum (Natural History), London; some 2,500 grams of fragmental material from the Bjurböle, Finland, stone, from the Geological Commission of Finland; and a fragment of the Port Orford, Oregon, pallasite, from the Boston Society of Natural History. The last, while very small, weighing but 25 grams, is interesting historically, having been taken from a large mass some 5 feet in diameter in 1856 by Capt. John Evans, a Government geologist, while making explorations in Oregon, and supposed by him to be iron ore. Its meteoric nature was determined by Dr. C. T. Jackson, and an unsuccessful attempt was apparently made to locate it for the Smithsonian Institution, but which failed owing to the death of Captain Evans. The single small specimen was lost to sight until some years ago when it was located among the collections of the Boston Society of Natural History and has now been secured for the Museum, where it doubtless should have come originally. With the help of Captain Evans's original manuscript, it has been possible to locate with considerable certainty the locality of the mountain from which it was obtained, and it is hoped that means will be found for undertaking an exploration for this interesting object with the idea of securing the entire mass for the Museum.

The gem collection has received but few additions. Among these are a bracelet of amber of peculiar color, purchased through the Frances Lea Chamberlain fund; a series of garnets and peridots in the rough from the Navajo Reservation, Arizona, presented by Mr. Frank Springer; and several hundred small seed pearls from Panama and five "fairy stones," gifts of Mr. H. P. Petersen.

An excellent series of crystallized native copper and silver with a number of miscellaneous minerals from the Lake Superior region, was acquired by purchase and gift from Mrs. James Merton, Chevy Chase, District of Columbia. Other materials that need to be noted on account of their unusual character or for having been made the subject of special research include a sample of lead-bismuth ore sent by Mr. Tim McCarthy, Wickes, Montana, which proved to be a new mineral described under the name *bismutoplagonite* by Mr. Earl V. Shannon; sillimanite, variety bucholzite, from Russell, and gedrite from Chesterfield, Massachusetts, presented and described by Mr. Shannon; laumontite from Lewis and Clark County, Montana, representing an unusual occurrence, presented by Mr. Charles P. Farnquist, Spokane, Washington, and fragments representing the first American occurrence of the mineral boussingaultite, from California, gift of Charles W. Fletcher, Los Angeles, also described by Mr. Shannon in association with Mr. E. S. Larsen. A crystal of manganotantalite from Amelia, Virginia, gift of Mr.

Ivan O. Lee, Jersey City, New Jersey, described by the donor and Dr. Edgar T. Wherry; an exceptional specimen of the mineral ptilolite from Challis, Idaho, gift of Dr. C. L. Kirtley; one of the rare mineral nesquehonite, presented by S. G. Gordon, Philadelphia; one of inyoite from a new locality in Nova Scotia, gift of the Albert Manufacturing Company, Hillsboro, New Brunswick; and examples of the rare mineral artinite and demantoid garnets from Italy, acquired by purchase, also need mention.

As in previous years, a very considerable portion of the accessions have come from the United States Geological Survey. During the past year these have been unusual in quantity and in scientific value. They included the original material which had been the subject of special investigation in the chemical laboratory of the Survey, as well as interesting additions to our series from the California pegmatite deposits, and many miscellaneous minerals, the transfer of which was incidental to the resignation of Doctor Schaller elsewhere referred to; a described series of manganese ores from western localities; the reference collection illustrating the report by Mr. F. L. Ransome on the Ray and Miami copper districts, Arizona, and that illustrating the ore deposits of Tonopah, Nevada, as described by Messrs. Edson S. Bastin and Francis B. Laney; and, in addition, about 100 standard drawers containing the collections from the Yellowstone Park made under the direction of Dr. Arnold Hague and described, in part, in volume 32 of the Survey Monographs, and collections from the Southern Appalachians and Nicaragua by Messrs. C. W. Hayes and others; also some 80 boxes of miscellaneous material, chiefly well borings and Alaskan rocks.

Other valuable additions to the study series from the Survey include the large collections of Silurian and Devonian invertebrates assembled by Dr. E. M. Kindle during his many years with the Survey and estimated to consist of at least 25,000 specimens, and perhaps 1,000 specimens from the Lance formation of the Dakotas, comprising the types and associated specimens described by Dr. T. W. Stanton in Professional Paper No. 128.

Large collections from various areas in the West Indies have been acquired. What is probably the largest single collection of West Indian or South American fossils that has ever come to the Museum is one from the Dominican Republic, embracing many hundreds of species including calcareous algae, foraminifera, corals, echinoids, crustaceans, and mollusks. These were collected by Dr. T. W. Vaughan and his associates and presented through the U. S. Geological Survey by the Military Government of the Dominican Republic.

Accessions comprising some 10,000 specimens of Upper Cambrian forms from Wisconsin, collected and presented by Mr. W. O. Hotch-

kiss, State Geologist, and Dr. E. O. Ulrich, and some 500 specimens of Middle and Upper Devonian fossils, a gift of Mr. E. G. Armstrong of Erie, Pennsylvania, greatly enriched the study collections of invertebrates, and Mr. Arthur E. Morgan, Chief Engineer of the Miami Conservancy District, Dayton, Ohio, donated an exhibition specimen of exceptional value in form of the largest known American trilobite, measuring 17 inches in length and representing a newly described species. There were also received as an exchange through Ward's Natural Science Establishment, 27 specimens of fossils, 14 of which are types.

One of the most valuable accessions to the section of vertebrate paleontology was a deposit from the Maryland Geological Survey, comprising 78 individual items, of which 74 are either types or figured specimens, 13 being the original types of the following species: *Promerus alleni* Gregory and Berry; *Istiophorus calvertensis* Berry; *Tretulias buccatus* Cope; *Balaenoptera sursiplana* Cope; *Priscodelphinus crassangulum* Case; *Cephalotropis coronatus* Cope; *Myliobatus copeanus* Clark; *Amyda virginiana* Clark; *Xiphias* (?) *radiata* Clark; *Synechodus clarkii* Eastman; *Carcharias incidens* Eastman; *Squatina occidentalis* Eastman; and *Thecachampsa marylandica* Clark. While but few of these are suitable for exhibition, the specimens are a valuable addition to our rapidly increasing series of type material.

Of equal importance are gifts of Pleistocene mammal bones and teeth, comprising 35 specimens from a cave near Bulverde, Bexar County, Texas, donated by Dr. O. P. Hay; about 60 specimens from Cavetown, Maryland, gift of Phillips Academy, Andover, Massachusetts, through Doctor Hay; and a small collection including fragmental remains of the horse and camel, from Washtucna Lake, Washington, obtained many years ago by General George M. Sternberg and presented in his name by Mrs. Sternberg.

By exchanges were acquired an unusually complete mounted skeleton of an extinct camel, *Stenomylus hitchcocki*, from the important Miocene deposits at Agate Springs, Nebraska; the type specimen of the fossil bird, *Jabiru weilli* Sellards; and two sets of *Moa* leg bones and one lot of crop stones, from New South Wales. The first of these was received from Carnegie Museum, Pittsburgh, Pennsylvania, and is now on exhibition; the second from the Geological Survey of Florida, and is important on account of the rarity of fossil bird remains; and the third from the Public School, Lake Bathurst, New South Wales.

Two enlarged photographs of Knight's restorations of *Brontotherium* and *Tylosaurus*, and a model restoration of a mastodon were acquired by purchase.

Four accessions of paleobotanical material may be especially mentioned. These are: A collection of fossil leaves from Venezuela, gift of C. F. Bowen, New York City; three large exhibition slabs with fossil plants, collected by Dr. R. S. Bassler; a large trunk of fossil wood from the early Carboniferous of Kentucky, acquired by purchase; and an interesting specimen of a pyrite filled cavity of a stem of the fossil plant *Calamites*, showing a curious phase of fossilization, transferred from the U. S. Geological Survey.

Explorations.—With the exception of the work carried on by Secretary Walcott in the Canadian Rockies, little in the way of extended field work has been accomplished by any of the divisions of the department. During the summer of 1919, a new geological section of more than 6,400 feet was discovered by the Secretary in the region of Glacier Lake, about 50 miles northwest of Lake Louise Station on the Canadian Pacific Railroad. Extensive collections and many photographs were secured, and the fossils have been correlated by preliminary study with the Upper Cambrian formations of Wisconsin, Minnesota, and western Idaho.

Four short but profitable trips were made by Curator Bassler of the division of paleontology. The first was by motor boat to the well known Aquia cliffs along the Potomac River, 40 miles below Washington. Here was found a single stratum in the Eocene consisting almost entirely of an elongated turret-like gastropod shell (*Turritella mortoni* Conrad) embedded in hard sandstone. From this was secured a slab 3 feet wide by 5 feet in length which is now on exhibition in the division of stratigraphic geology. A trip to southeastern Indiana resulted in the acquisition of a number of limestone slabs containing Early Silurian plant and animal remains in an excellent state of preservation for exhibition purposes. In October, Doctor Bassler was detailed to proceed to Dayton, Ohio, where he prepared and shipped the large and unique specimen of trilobite which had been uncovered in the excavations in connection with the Conservancy dam. In June, 1920, Doctor Bassler also visited Cincinnati to arrange for the acquisition of the fossil skull of an elephant recently discovered there, from whence he proceeded to Chicago for the purpose of making casts of types in the University museum. This latter work resulted in a great increase in the value of the National collections in the addition of hundreds of unique specimens which, although only plaster casts of the original types, serve admirably for purposes of comparison and study. The National Museum should possess either the originals or casts of all described species, and it was with this end in view that the present expedition was undertaken.

The field researches of Doctor Ulrich of the Survey and associate in paleontology, were directed especially to the study of the stratig-

raphy and collecting of Upper Cambrian fossils in Wisconsin in association with Dr. W. O. Hotchkiss, State Geologist, the results of which have already received notice. An assistant in the employ of Mr. Frank Springer continued the systematic study of strata containing fossil echinoderms at St. Paul, Indiana.

Mr. Shannon of the division of applied geology, on his own initiative, occupied about ten days in visiting points of especial interest among the trap quarries about New Haven and Meriden, Connecticut, the old tungsten mine of Long Hill in Trumbull, feldspar quarries in Portland, and the old lithia and cobalt mines in Chatham. The materials collected on this trip have been made the object of investigation as noted elsewhere. Assistant Curator Foshag visited the famous mineral locality of Amelia, Virginia, the old Tilly Foster iron mines of Brewster, New York, and was given a detail of six weeks to be spent in California. On the latter trip he visited the borax mines at Lang and Borate, the lithia mines at Pala, the silver mines at Calice and Randsburg, the quarries of the Riverside Portland Cement Company at Crestmore, Searles Lake, and the mercury mines at New Almaden. The results of this trip have not as yet arrived at the Museum and a report on the same cannot be made at the present time.

Little has been added to the vertebrate collections through field explorations excepting those directly under the U. S. Geological Survey. Mr. Gilmore was, however, detailed to visit the American Museum of Natural History for the purpose of making comparisons of certain specimens in the national collections from the Potomac formation of Maryland with identified materials in the collections of that institution. His results have led to discoveries which promise to be of paleontological as well as geological interest.

Work on the collections.—The growth of popular interest in that portion of the exhibition series devoted to the rare earths and rare metals made necessary an amount of rearrangement which has involved changes of considerable magnitude, together with the introduction of much material that was new. Other installations include the unique sheet of native copper from Bolivia and the large slabs of Tennessee marble already referred to. The work of reweighing, measuring, and cataloguing the stones included in the collection of gems, mentioned as in progress in my last report, has been completed. This collection has been augmented chiefly in that portion showing the stones in their natural as well as cut condition; otherwise, the principal changes are in rearrangement. This work has been carried on practically in its entirety by Miss Margaret Moodey.

The newly appointed assistant curator in the division of mineralogy was confronted with a large quantity of material which had accumulated during the two years that the division was

without a head. The most pressing work, therefore, was to relieve the congestion in the recorder's office. This involved the unpacking of a large collection transferred from the U. S. Naval Academy some months before, which, while of a very miscellaneous nature, yielded a considerable quantity of very good material, in part from localities long since abandoned and hence of some prospective value. These accumulations disposed of, attention was turned to the segregation of all such minerals as have been the subject of special investigation or which represent the original materials upon which new species or varieties have been founded, thus forming a collection which corresponds to types in a paleontological series.

The principal work on the petrographical collections has been the breaking up and assorting of lots which have been held for many years as local collections. In cases where their usefulness as such no longer exists, these have been condemned as sets, the more desirable material held for incorporation in the study series, some held as duplicate, and some discarded.

Much attention has been devoted to the exhibition series in the section of invertebrate paleontology. The collections illustrating stratigraphic geology have been increased by large slabs illustrating the occurrence of fossils in the matrix; the exhibits of rocks and characteristic fossils illustrating the Archeozoic and Proterozoic eras of geology have been completed; and the preparation and installation of specimens illustrating the cephalopods, echinoids, and other classes in the biological series have been continued.

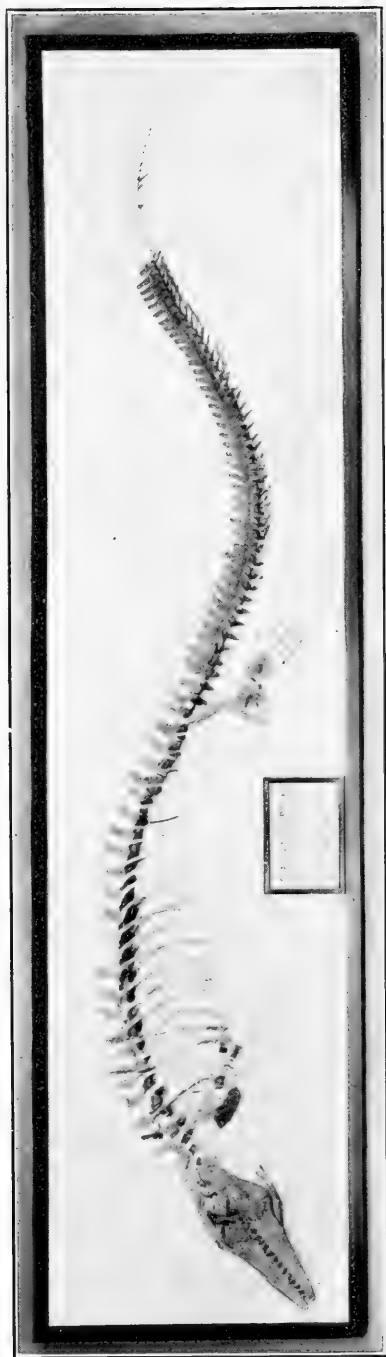
The Cambrian collections in the charge of Secretary Walcott have been examined and rearranged by him personally, and the material collected during his field season of 1919 has been recorded and worked out, preliminary examination being given the individual specimens. Assistant Curator Resser has cared for the Cambrian material housed in the Museum building.

The work of identification and distribution into the biological series of the unstudied material and the elimination of duplicates has been continued. Many thousands of specimens have been handled in this way during the year. These study collections are now so extensive that much time must be devoted each year simply to the manual labor involved in providing space for new materials. The past year has been no exception, as it has been necessary to rearrange the three molluscan groups, cephalopods, pelecypods, and gastropods.

Doctor Ulrich and his assistants have, as before, cared for the extensive series of Ozarkian and Canadian fossils, the higher divisions of the Paleozoic remaining under the immediate care of the curator. Mr. Frank Springer has devoted his time to the study of the echinoderms, and Dr. T. W. Stanton, with the aid of Mr. T. E. Williard, has continued his care of the Mesozoic series.



MOUNTED SKELETON OF BRONTOTHERIUM HATCHERI OSBORN.



MOUNTED SKELETON OF TYLOSAURUS PRORIGER COPE.

Dr. W. H. Dall reports progress in indexing the Tertiary material in his charge. The largest additions to these collections have been from the West Indies and are under the immediate supervision of Dr. T. W. Vaughan. All have been given a preliminary examination, assorted into species, and tentatively identified.

The skeleton of *Brontotherium hatcheri* Osborn has been added to the exhibits of vertebrate fossils. This imposing addition to the skeletons of large extinct mammals is the first and only mount of the genus to be exhibited. As shown in the accompanying plate 2, it forms an interesting illustration of the skeletal structure, and too much praise can scarcely be afforded Mr. Horne for the mechanical skill displayed in the preparation.

A long existing gap in our representation of the fauna of the Niobrara Cretaceous is filled by the attractive and instructive exhibit shown in plate 3. This skeleton of the large sea-living lizard, *Tylosaurus proriger* Cope, is mounted in half relief as a panel on the north wall of the main exhibition hall. It measures some 25 feet in length and, with the exception of the paddle bones of the hind limb which pertain to a second individual, all the parts belong to this one specimen. The work of mounting was done by Mr. Norman Boss with his accustomed skill.

Other additions to the exhibition series in this division include a skeleton of the diminutive camel, *Stenomylus hitchcocki*; skulls of the musk-ox mounted on a panel in the alcove of Pleistocene specimens; and four large *Brontotherium* skulls mounted for the Titanotheres exhibit. In addition Mr. Horne prepared and mounted a finely preserved bear skull and three skulls of the extinct peccary, *Platygonus cumberlandensis* Gidley, male, female, and young, on a single support, these last forming the nucleus around which it is proposed to arrange a representative series of the Cumberland cave fauna.

The refitting of the large cases in the east end of the vertebrate hall has permitted an entire rearrangement of the materials, and incidentally, the retirement of many fragmental specimens, thereby greatly improving the appearance of the exhibit.

A systematic arrangement of the study collections of mastodon remains has been completed by Mr. Gidley, who is continuing his studies on the Fort Union mammals and the Cumberland cave collections. Of the former, some 50 additional specimens have been named or definitely determined so far as their generic and specific characters are concerned. In this collection some 350 specimens have already been catalogued.

The preparators have as usual been employed not merely in the preparation of material for exhibition, but in repairing broken specimens, renovating cases, and cleaning up the more or less fragmentary

materials constituting the study series. An important piece of work has been the making of casts, five each, of all the ten types of North American fossil birds. These are to be utilized in exchanges with other museums in order that our collections may be made to include practically all that is known of the fossil remains of this group.

Messrs. Barrett and Goldberg have worked almost exclusively upon the study series. Mr. H. Warner, as in previous years, has devoted his attention to preparatory work in the division of geology and mineralogy, but has also been occupied in general repair work about the building.

The work in the division of paleobotany has consisted in the preparation and installation of large specimens, diagrams, and photographs illustrating the biological relationships of fossil plants. This exhibit, which is to occupy a long wall case in the paleobotanical hall is now about one-third completed, and much new material will be required before its condition can be considered satisfactory. Miss Lucile Simpson, aid in the division, has been engaged in checking and placing in final museum form the extensive collections of the Lower Cretaceous plants, particularly those from the Potomac group.

An attempt has been made in the department to arouse an interest, or better, to cater to an interest already existing, in the history of the progress of the science of geology and personnel. With this end in view, portraits of the principal early workers, together with their more important publications, particularly text books, have been installed in flat-top cases at the north end of the geological hall on the first floor. This hall has been further improved in conformity with the department's policy of open installation, by removing all large cases from the center aisle and replacing them with the low, flat-top forms, thus giving an uninterrupted view of the entire length of the hall. Aside from this, the rearrangement of many of the exhibits has greatly added to the impressiveness of their appearance.

A portion of the time of the curator and assistant curators in paleontology has been devoted to the preparation of lectures and motion-picture work illustrating the activities of the Museum. In accordance with a request of those interested in the work of the Young Men's Christian Association, lectures were prepared illustrative of the ancient life of North America as revealed in the collections of the Museum. The scenario of an educational moving picture illustrating the earliest known life forms, the film being based on the Secretary's work in the Canadian Rockies, was prepared by Curator Bassler. This film received wide circulation through the Universal Screen Magazine.

Last year's report mentioned progress in the preparation of 100 sets of ores and minerals for distribution to schools. The completion of this work, that is the numbering, labeling, and wrapping of about one-half of the specimens, and packing the entire lot, was completed, and the 100 sets of 85 specimens each, was ready for distribution on January 16. The preparation of a like number of sets of rocks is already under way, but progress is slow as there are lacking many important types, for the collection of which no funds are available.

Incidental to the condensation of office and storage space forced upon the Geological Survey during the fall of 1919, more than 300 boxes of miscellaneous materials were sent to the Museum for final disposition. Only a portion of these have as yet been examined. The proper handling of this quantity of material will occupy a considerable portion of the coming year.

The proof reading of the head curator's bulletin on the history of state geological surveys, largely in the hands of Miss Moodey, recorder of the department, has been completed. Doctor Bassler completed the proof reading and indexing of Bulletin 106, U. S. National Museum, a monograph of the Early Tertiary Bryozoa of North America, comprising over 1,000 quarto pages. In the preparation of this he was assisted by Ferdinand Canu of Versailles, France, and Miss Jessie Beach.

The collections, considered in their entirety, were never in better condition than today. For the first time in several years the personnel of the department is complete, and it is possible to carry on the work systematically in all divisions.

It has been deemed expedient to place the collection of gems under the immediate supervision of the Recorder of the department instead of in the care of the Assistant Curator of Mineralogy as heretofore. This collection, it will be recalled, originated through the bequest by Mrs. Frances Lea Chamberlain of a collection which had been assembled by her father, Dr. Isaac Lea. Mrs. Chamberlain's husband, Dr. L. T. Chamberlain, became interested in the welfare of the collection, was made honorary curator, added a large number of specimens, and on his death bequeathed a sum, the income of which is to be utilized for its further increase. The collection has been added to by gifts and transfers from the U. S. Geological Survey, the additions, however, being combined with the original and exhibited as the Isaac Lea Collection, although individual gifts are differentiated by labels. The exhibit at present is comprised in a row of table cases extending down the center of the mineral hall. At the west end of this row, immediately to the right of the entrance to the hall, stands a large group of amethyst crystals from Brazil. Two table cases in front of the south windows contain series illustrating the properties of precious stones, their appearance in the

rough as contrasted with the cut stones, and artificial and imitation stones. In an upright case between the windows at the center of the hall are many semi-precious stones such as are utilized in the manufacture of small ornaments rather than as objects for personal adornment. It may be added that in building up the collection, an attempt has been made to show the possibilities of common-place material; that there are a goodly number of stones, in themselves of little intrinsic value, which, when properly cut and mounted, are not merely beautiful but have the additional value of being out of the line of the usual material sold in the shops. In this connection, particular attention may be called to the cabochons of silicified wood, obsidian, epidotic granite, and the green feldspar, amazon-stone.

Researches.—As may readily be inferred from what has gone before, but a limited portion of the time of the scientific force can be devoted to research. The head curator has continued his work on meteorites, as in previous years, under a grant from the National Academy of Sciences. With the able assistance of Miss Moody, he has also prepared and submitted for publication a handbook and catalogue of the gem collection, which, it is expected, will be issued during the coming year.

Mr. Earl V. Shannon, assistant curator in the division of economic geology, has carried on a number of investigations, a portion of which have an economic bearing. A voluminous manuscript on the minerals of Idaho, based in large part on Museum material, is practically finished, and a crystallographic study of the datolites of Westfield, Massachusetts, is well along toward completion. Materials collected in Connecticut during the autumn have been investigated and made the subject of two papers, one on triplite from Chatham and the other a lengthy study of the minerals of Long Hill, in Trumbull. Shorter investigations on minerals of the chlorite group include analyses and the optical examination of amesite and corundophyllite from Chester, Massachusetts; of chromium bearing chlorites from California and Wyoming; and of stilpnomelane from New Jersey. A new mineral, bismutoplagonite, has been described. Mineralogical examinations in the reserve series of ores have resulted in the preparation of papers on boulangerite and bindheimite, both of which were shown to be more common ore minerals than heretofore supposed.

Assistant Curator Foshag of the mineral department has investigated a considerable number of minerals and submitted for publication papers on sulphohalite, glaserite, hydrotalcite, and the hydro-talcite group of minerals, thaumasite, spurrite, and hematite. Some exceptional specimens received in the department have been made

the subject of investigation, and a description of the mineral localities of Yuma County, Arizona, has been published.

In paleontology, Secretary Walcott has completed and published the results of his study of the Middle Cambrian algae from the Burgess shale fauna, collected during the last ten years, a preliminary report on which appeared in 1912, and a similar study and report on the Spongiae from the same horizon and region. In addition he has prepared two papers, one a further study of the appendages of the trilobite, and the other a study of the problematic Middle Cambrian crustacean, *Marrella*, discovered in the Burgess Pass fossil quarry.

Mr. Frank Springer has continued his study on the fossil echinoderms and completed the proof reading on his monograph of the Crinoidea Flexibilia in course of publication by the Smithsonian Institution.

Dr. E. O. Ulrich has continued his studies on the Ozarkian and Cambrian fossils, and with Dr. C. E. Resser made a preliminary examination of the large collection of Cambrian forms from Wisconsin, mentioned elsewhere in this report. Doctor Resser has continued his bibliographic index of Cambrian fossils.

Dr. R. S. Bassler, in association with Ferdinand Canu, completed his monographic study of the fossil Bryozoa of the West Indies, the results appearing in a publication of the Carnegie Institution. They have also continued investigations on the fossil and recent Bryozoa in the Museum collections.

Dr. T. W. Stanton has continued work on the invertebrate faunas of the Comanche series of the Cretaceous preparatory to a monograph on the subject, and has completed that on the fossils of the Cannonball member of the Lance formation of the Dakotas.

A report has been prepared by Dr. Mary J. Rathbun on the Cretaceous decapod crustaceans of Tennessee and one on the same group from the Pacific Coast states and British Columbia is progressing. Doctor Rathbun has also identified the crustaceans obtained in 1919 in the Dominican Republic by Dr. T. W. Vaughan, and prepared for publication descriptions of three new species.

Dr. F. H. Knowlton has finished the study of the Museum's collection of fossil plants from the Denver formation, and Dr. W. H. Dall has reported on the Pleistocene and Eocene fossils of the Arctic coast collected by the Stefanson expedition. His report on the fossils of the Nome Peninsula has been issued by the Geological Survey, and the proofs read on his revision of the recent and Tertiary Brachiopoda. A list of the marine shell-bearing mollusks of the west coast of America from San Diego to the Arctic Ocean has been prepared and is now in the hands of the printer. Work has

been commenced on the fauna of the Hawaiian Islands, Pleistocene and Recent.

Mr. Gilmore has completed his monographic study of the carnivorous dinosaurs in the collections, and the results are in course of publication as a special bulletin of the Museum. He has also published a short article on the discovery of an Ornithomimid dinosaur in the Potomac formation of Maryland, and a paper giving the results of a study of all the Potomac reptilian materials is well under way.

Mr. Gidley reports progress in the study of the Fort Union mammals and has apparently established the fact that two or three relatively diversified groups of true primates existed in western North America during that geological period, several species of which are represented in our collections. But little has been done in continuation of Mr. Gidley's study of the Cumberland cave carnivores begun last year owing to the unprepared condition of the material.

Prof. R. W. Sayles of Harvard University was engaged for some weeks in January examining the slates of the collection with especial reference to possible evidence of seasonal banding, a problem upon which he is now engaged. Dr. August F. Foerste of Dayton, Ohio, spent several weeks in a study of the collections of Silurian cephalopods; Prof. W. H. Shideler, professor of geology at Miami University, Oxford, Ohio, was occupied from February to June in an examination and study of the Upper Ordovician and Lower Silurian fossils from the Ohio Valley; Prof. O. A. Thomas of the University of Iowa, has studied the fossil echinoderms; and Prof. G. M. Ehlers of the University of Michigan, has been similarly engaged on the fossil corals. Dr. Arthur Hollick spent some months studying the fossil plant collections and is now bringing his work on the Cretaceous floras of Alaska to a conclusion. The plant collections have also been studied by Prof. E. W. Berry of Johns Hopkins University, Dr. Harvey Bassler of the U. S. Geological Survey, and Dr. G. R. Wieland of Yale University.

Cooperation with the Maryland Geological Survey has resulted in the publication of a volume on the Cambrian-Ordovician rocks of Maryland, in which the paleontological work is based on Museum specimens; Prof. T. D. A. Cockerell has continued cooperation with the division in his study of the collection of Eocene insects; and Dr. O. P. Hay, working under the auspices of the Carnegie Institution, has continued his studies on the American Pleistocene faunas, as in years past.

Other workers who have studied the collections are Mr. M. A. Howe of the New York Botanical Gardens; Dr. J. A. Cushman, Boston Society of Natural History; Dr. R. T. Jackson, Peterboro, New Hampshire; Dr. Charles Mook, American Museum of Natural

History; Prof. W. L. Bryant, Buffalo Society of Natural Sciences; Miss Julia Gardner, Mr. W. C. Mansfield, Mr. W. P. Woodring, and Dr. C. Wythe Cooke, of the Geological Survey.

Distributions.—There have been prepared and sent out from the department 11 shipments, aggregating 460 specimens, as gifts; 36 shipments, aggregating 1,969 specimens, as exchanges; and 30 shipments, aggregating 801 specimens, for study. Of the last, much of the unstudied material, counted for convenience as specimens, was actually contained in lots, it being impossible to state the number of specimens.

In addition to these specially prepared materials there were sent out as gifts 10 sets of minerals and ores, aggregating 850 specimens; 3 sets illustrating rock weathering and soil formation, 63 specimens; and 6 sets of invertebrate fossils, 273 specimens.

Total number of specimens in the Department.—For reasons that have been repeatedly stated in years past, it is impossible to give with anything like accuracy the number of specimens in the collections, either duplicates or otherwise. The statement given below regarding the exhibition series is based on an estimate made in February, 1919.

Estimated specimens on exhibition, February 11, 1919:

Chemical and dynamical geology	2,159
Meteorites	825
Ores and nonmetallic minerals	6,704
Building and ornamental stones	2,613
Minerals, systematic series	5,132
Gems	1,500
Petrological collections	1,704
Invertebrate fossils	24,000
Vertebrate fossils	650
Fossil plants	5,600
Total	50,887

REPORT ON THE DIVISIONS OF TEXTILES AND MEDICINE AND THE SECTIONS OF WOOD TECHNOLOGY AND FOODS,

By F. L. LEWTON, *Curator of Textiles.*

CHANGES IN ORGANIZATION OR STAFF.

During the year there was but one change in staff, Mrs. E. W. Rosson, of the division of textiles, having been promoted from preparator to aid. On September 2, 1919, Mr. William M. N. Watkins, assistant curator, section of wood technology, returned to the Museum and took up the work of the section where he laid it down in August, 1918, due to induction into the military service of the United States. It seems to be the fate of this section to suffer long periods of inactivity for, due to changes in personnel or war service, there have been three such periods since 1916. It is earnestly hoped that nothing more will come up to prevent steady progress in the carrying out of plans long since formulated for the section of wood technology.

COMPARISON OF INCREMENT OF SPECIMENS OF 1919-20 WITH THAT OF 1918-19.

The accessions received during the year number 75 (including two joint accessions with other departments), being one less than the preceding year.

Without counting the more than 4,000 yet unlisted specimens comprised in the incomplected exhibit of the Medical Department of the U. S. Army, the entries covered by the accessions of the year were 1,716, 832 more than were received in the fiscal year 1919. These entries may be divided into five groups as follows: textiles 133, medicine 889, wood technology 570, foods 55, and miscellaneous organic products 69; each group, with the exception of textiles and foods, showing as many or more entries than last year.

The value of the accession covering the Medical Department of the U. S. Army was emphasized in the report for last year, although but a part of the exhibit material had been received by June 30, 1919. Leaving out of the comparison this accession, since it comes into the activities of both the fiscal years 1919 and 1920, the scientific value of the entries received during the present year is much in excess of that of last year. This comparison is not just, however, as concerns the section of wood technology, since the section was practically inactive during the year 1919, on account of war work and service.

The most important accession of textile specimens received during the year was a series of 16 specimens of silk cartridge cloth which was transferred to the Museum by the Salvage Board of the Department of Ordnance, War Department. This material is well worthy of special mention, since it is an example of a number of really new things developed solely out of the necessities of the Great War's conditions, and which are already finding their places as useful articles or inventions under a condition of permanent peace. Even in ordinary times, the development of a really new fabric is an important matter.

This war-time fabric, known as silk cartridge cloth, is made entirely of silk, and was used in the preparation of separate loading ammunition for all guns and cannon having a diameter of 4.7 inches and upwards. For these large guns the propelling charge of smokeless powder was put into the gun in cloth containers or powder bags. The bags were made of silk cartridge cloth in place of any other fabric, because the ash resulting from the ignition did not smut the inside of the gun, thus permitting continuous firing without stopping to clean out the barrel. Nor did fragments of the silk smolder in the breech of the gun, as would a bag made out of cotton or other materials, thereby igniting prematurely the new charge before the breech was closed and endangering the lives of the gunners. Another advantage of using the silk cartridge cloth for powder bags, was that the silk did not cause a flash at the muzzle of the gun, as would have been the case with cotton or linen, thus avoiding detection of the location of the artillery by the enemy. The silk cartridge cloth which proved itself so indispensable for ordnance purposes was made from various kinds of raw silk, principally waste silk. The waste silk, composed of cut cocoons, immature cocoons, floss combings from the outside of cocoons and tangled masses of silk which could not be reeled in the usual way, was put through a carding process and spun like cotton or wool into what was commonly known as spun silk yarn. This yarn was generally used for the warp or lengthwise threads in the various grades of cartridge cloth. In all the grades of cartridge cloth used by the U. S. Army, the filling, or crosswise threads, was of noil yarn. The noil yarn was spun from short-length fibres left as a by-product in the manufacture of spun silk yarns. The noils were graded, combed and spun in oil, in order to work more smoothly in the spinning of the yarn. All raw silk contains, approximately, 25 per cent of natural gum supplied by the silkworm. This gum was not removed from the raw material used in the making of the cartridge cloth, as it would have been in the case of silk intended for commercial use, for neither the gum

nor the oil were objectionable in the explosive charge, since both were entirely consumed in the flash, and left no ash.

The silk cartridge cloth was considered so essential that, during the war with Germany, no less than sixty mills were engaged in manufacturing it according to specifications furnished by the War Department. It was made in eleven principal grades and furnished in five different weights for guns of differing calibre. At the signing of the Armistice in November, 1918, the Department of Ordnance had on hand a large amount of silk cartridge cloth. After reserving a sufficient amount for the regular needs of the army, approximately 11,000,000 yards were declared surplus and available for salvage. As a textile fabric for ordinary commercial use, the silk cartridge cloth presented a very unattractive appearance, since it was all "woven in the raw" and of plain weaves; for the principal requirements which the War Department had demanded of the manufacturers was a high tensile strength and proof at a glance that the fabric was all silk. In spite of extensive advertising by the Salvage Board, the manufacturers and dry goods trade of the country turned down the 11,000,000 yards of surplus material as undesirable for commercial use, the highest price offered being twelve and one-half cents a yard, about one-fifth of what it had cost the Government.

In order to demonstrate the worth of silk cartridge cloth and the practicability of its use for other than military purposes, it was decided that samples of this material would be processed and finished according to methods used in the manufacture of regular commercial fabrics. These consisted in "boiling off" the natural gum and added oil from the fabric, and subjecting the cloth to bleaching, dyeing, printing, napping and other processes. These experiments resulted in a beautiful fabric suitable for men's and women's wearing apparel, millinery, draperies, upholstery, and other uses, and in consequence thereof the dry goods trade and the public were soon convinced that silk cartridge cloth was as desirable as well as an attractive fabric, possessing a durability which rendered it invaluable when considering its wearing qualities. The carrying out of these experiments by the authority of the Judge Advocate General of the Army resulted in the Salvage Board disposing of the entire surplus of silk cartridge cloth to a commercial firm, whereby the Government was guaranteed the return of the cost price and in addition 50 per cent of the net proceeds resulting from its sale to the public.

The series of samples transferred to the Museum by the Salvage Board shows not only various grades and weights of the unfinished cartridge cloth as used by the Department of Ordnance for military purposes, but examples of the results obtained in the finishing experiments which demonstrated its use for ordinary textile purposes.

Owing to a recent widespread and growing interest on the part of the consuming public for all kinds of knitted fabrics, several of the most important manufacturers of this class of fabrics were invited to send samples to the National Museum for exhibition in comparison with woven textiles. Generous responses were received from six firms, five in New York City and one in Woonsocket, Rhode Island, resulting in the following additions to the collections: From Michel and Krieger, seven samples of tricolette, H. R. Mallinson and Company, Incorporated, three samples of deluxknit, and Haas Brothers Fabrics Corporation, two samples of trico silks, all knitted from artificial silk yarn; from the Princess Textile Mills, Incorporated, eight samples of angora fabrics knitted from worsted, mohair, alpaca, camel's hair, and mixed yarns; from the Knit Fabrics Company, through its selling agent C. H. Guggenheimer, four samples of wool and worsted jersey cloths; and from the Gold Mark Knitting Company, Woonsocket, Rhode Island, six samples of wool and worsted jersey fabrics for women's and boys' clothing. These specimens are varied as to raw material, construction, weight and design, and enable the Museum visitor to get some idea of the extensive range of this class of fabrics.

A series of specimens and photographs illustrating the program of physical reconstruction and rehabilitation for American soldiers disabled in the Great War, as carried on in military hospitals under the direction of the Surgeon General, U. S. Army, was transferred to the Museum by the Reconstruction Aid Service of the War Department. The curative work shown by this exhibit was of two kinds: (a) Occupational-Therapy, and (b) Physio-Therapy.

Before the crippled soldier was able to leave his bed, depressive thoughts were dispelled by handicraft work, weaving, knitting, beadwork, basketry, etc., and his convalescence immeasurably hastened. The class room and shop then gave the wounded veterans tasks that brought stiffened joints and muscles into action again, occupying their minds and opening new vocational fields. By Physio-Therapy was meant treatment by other than medical methods, and it was subdivided into Hydro-Therapy, Electro-Therapy, Massage, Medical Exercises, and Mechano-Therapy. As early as possible these treatments were applied by Reconstruction Aids in Physio-Therapy for the relief of pain, the limbering of stiff joints, and the restoration of certain types of paralyzed extremities. The specimens of handiwork done by crippled men under this program included examples of weaving, knitting, wood carving, jewelry, metal working, pottery, basketry, and toys.

Of the material which was assigned to the division of medicine during the year, the most important for the purpose of exhibition was that contributed by Parke, Davis and Company of Detroit,

Michigan, for an exhibit of "Medicinal Forms." The purpose of this exhibit is to illustrate by representative specimens, the classification of pharmaceutical preparations; that is, the various forms in which medicinal substances are prepared for administration. One or more examples of the following pharmaceutical preparations are included in this accession: Powders, tablets, capsules, compressed tablets, tablet triturates, poison tablets, granular effervescent salts, lozenges, pills, infusions, decoctions, wines, tinctures, fluidextracts, oleoresins, resins, pencils, cerates, suppositories, extracts, liquids, mixtures, waters, mucilages, lotions, gargles, spirits, elixirs, syrups, honeys, oxymels, liniments, glycerates, collodions, and sprays. Exhibits of this kind are rare, for the reason that many of the preparations soon deteriorate and become unsightly in appearance, consequently manufacturing pharmacists are usually unwilling to prepare and contribute them for exhibition. The specimens included in this accession were made under the supervision of Dr. J. M. Francis, Chief Chemist of Parke, Davis and Company, and a member of the Committee on Revision of the U. S. Pharmacopoeia, to whom much credit is due for his efforts to provide properly preserved specimens for exhibition.

Next in importance was the material illustrating the subject of essential oils. The spices and aromatics which constitute the first foundation of international commerce, have practically retained their original importance in spite of all changes in the world's history. After several thousand years of knowledge and actual use of the spices in their original form, their essential constituents, the volatile oils, have since the Middle Ages, and more particularly in modern times, been isolated and utilized. These oils are more properly called essential oils from the fact that they possess, in concentrated state, the essential properties of taste and odor of the plants from which they are derived, and sometimes volatile oils, because they may be volatilized unchanged by the application of heat, in distinction from the "fixed" oils and fats, like olive oil and lard. The essential oils are strongly odorous and are used largely in perfumery and to conceal nauseous tastes and odors in medicines. Certain therapeutic properties are common to many of them, a large number of them are germicidal and nearly all of them are antiseptic. Some of the essential oils possess marked anaesthetic powers, and are used to relieve toothache.

The Museum is indebted to the Dodge and Olcott Company of New York City for the series of essential oil specimens and examples of the raw materials used in their production. This exhibit has been supplemented by two small models illustrating how oils are obtained by distillation. A model of a composite-type oil still, such as is used in distilling materials like sandalwood, nutmegs, mace, cloves, cassia,

etc., was made and contributed by Mr. Charles A. Myers, Jr., of the Dodge and Olcott Company. A model of a peppermint still, to show the type of still most used in obtaining the essential oil from leaves and herbs, was constructed in the laboratory of the division of textiles, from plans furnished by the A. M. Todd Company of Kalamazoo, Michigan. Another model, that of a birch oil still, was described in last year's report.

Much material for an attractive exhibit of *materia medica* derived from the mineral kingdom was obtained during the year. In medicine these substances are called "chemicals" in contradistinction to "galenicals," which are medicinal substances approved of by Galen, a celebrated Greek physician and medical writer of the second century, who opposed the use of chemical drugs. The exhibit shows samples of the ores which are the principal sources of these medicines, photographs of the mining of each element represented, and specimens of the official medicinal substances. Several firms contributed to the completion of this exhibit as follows: The Powers-Weightman-Rosengarten Company of Philadelphia, 59 specimens of inorganic chemicals; E. R. Squibb and Sons, New York City, 51 specimens of medicinal chemicals; photographs showing mining of the original ores were received by transfer from the U. S. Geological Survey, and by gift from Dr. Thomas L. Watson, State Geologist, Charlottesville, Virginia.

A corresponding exhibit, illustrating the animal sources of medicines, also received some additions during the year. Help toward this end was given by the contribution of specimens or photographs as follows:

Armour and Company, Chicago, Illinois, 12 medicinal preparations and ten photographs; E. R. Squibb and Sons, New York City, ten specimens; McKesson and Robbins, Incorporated, New York City, seven specimens; Parke, Davis and Company, Detroit, Michigan, six specimens; and photographs of domestic animals, insects, and fishes which yield medicinal substances were received by transfer from the Departments of Agriculture and Commerce.

The Museum is much indebted to Dr. W. A. Dewey, Registrar of the Homeopathic Medical School, University of Michigan, Ann Arbor, Michigan, who continued his valuable cooperation in collecting articles and specimens to illustrate the history and principles of the Homeopathic School of Medicine. The more important of these contributions may be named as follows: A bronze medallion of Dr. Hahnemann, "The Founder of Homeopathy," executed by the famous French sculptor, Pierre Jean David D'Angers, between 1836 and 1838, was the gift of Dr. Joseph C. Guernsey of Bryn Mawr, Pennsylvania. This medallion was brought to America by Dr. Adolph Ferdinand Haynel, one of the early homeopathic physicians of Balti-

more, Maryland, who was a personal student of Hahnemann, and an inmate of his family for ten years. When Dr. Haynel returned to Germany in 1868, he presented the medallion to Dr. Henry N. Guernsey of Philadelphia, the father of the donor, who was a co-worker with him in the pioneer field of homeopathy. Four photographs of pathological specimens resulting from the action of small doses of homeopathic dilutions given to healthy animals were contributed by Dr. W. Franklin Baker of Philadelphia, Pennsylvania. As a result of the cooperation of Doctor Dewey, the Museum is indebted to the following persons for books relating to the subject of homeopathy:

Dr. Dudley A. Williams, Providence, Rhode Island, ten volumes of Allen's *Encyclopedia of Homeopathic Materia Medica*, with *Symptom Register*, and a copy of Hahnemann's *Lesser Writings*; Dr. E. P. Cuthbert, Titusville, Pennsylvania, nine volumes of the *Transactions of the American Institute of Homeopathy*; Dr. Lynn A. Martin, Binghamton, New York, *Transactions of the First and Second Sessions of the American Institute of Homeopathy, 1844-1845*; *The American Institute of Homeopathy, Chicago, Illinois*, volumes one and two of its transactions for the year 1876; Dr. Martha Isabel Boger, Portsmouth, New Hampshire, a copy of Allen's *Materia Medica of the Nosodes*; and Mr. Carl Hering, Philadelphia, Pennsylvania, a bound typewritten copy of the "*Chronology of the Life of Constantine Hering, the Father of Homeopathy in America*," and a reprint of part of the same from the *Transactions of the International Hahnemannian Association*.

The division of medicine in continuing its efforts to obtain material to illustrate the history and principles of Osteopathy, received by contribution from Dr. George A. Still, Director of the American School of Osteopathy, Kirksville, Missouri, 77 books and pamphlets, and 114 photographs relating to the subject.

Dr. Murray Galt Motter, Librarian of the Hygienic Laboratory, Washington City, and for many years Secretary of the Revision Committee of the U. S. Pharmacopoeial Convention or of its Board of Trustees, contributed 27 publications bearing on the history of the U. S. Pharmacopoeia. Among these is a copy of the *Edinburgh Pharmacopoeia of 1776*, and the *Pharmacopoeia of the Massachusetts Medical Society, dated 1808*, which books were the precursors of the first official pharmacopoeia of the United States, which was published in Boston, December 15, 1820, and which has been revised every ten years since that time.

The United States Pharmacopoeia occupies a unique place among other books of similar character, in that while it is not published officially by the United States Government, it is nevertheless an official publication. It has been declared the standard in the enforcement of our national food and drug law, and is so recognized in

courts of law. Six years were spent in revising the last Pharmacopoeia, and the current edition of this book, the tenth, represents the labors of a Revision Committee of fifty-one elected by the Convention of 1910, and composed of doctors, pharmacists, and chemists.

The written and printed records of this great work were deposited in the National Museum by the United States Pharmacopoeial Convention, Incorporated, on May 11, 1920, and consists of the following documents:

"Letters" of the Executive Committee of Revision 1910-1920, 3417 pages;

"Circulars" carrying the correspondence and votes of General Committee of Revision 1910-1920, 2000 pages;

Published abstracts of *proposed* U. S. P. Changes;

The original manuscript of the U. S. P. 9th Revision;

Galley proof for correction by Committee Members;

Assembled comments on galley proof;

Page proof for correction by Committee Members;

Assembled comments on page proof;

Foundry proof;

Plate proof;

Also the manuscript for the Spanish edition of the 9th Revision of the Pharmacopoeia.

These records, taken with the copies of practically every edition of the Pharmacopoeia already owned by the National Museum, cover the history of a remarkable book extending over a hundred years. A part of the written record of this history has been added to the collections by the receipt of a copy of the "Life of Dr. Lyman Spalding, the Originator of the United States Pharmacopoeia," which was contributed by the author, his son, Dr. James A. Spalding, of Portland, Maine.

There has been added to the exhibition collections of the section of wood technology, a most noteworthy series of illustrations prepared for the National Museum by the U. S. Forest Service. This consists of 48 colored bromide enlargements and 25 colored transparencies. The bromide enlargements are divided into four sets showing "Types of Lumbering," "Steps in Lumbering," "Forest Industries," and "Forest Service Work," and each of these contains 12 scenes with appropriate sub-headings. These pictures are to be set in a mahoganized frame and placed as a frieze around the I-beam supporting the gallery over the Wood Court. The transparencies represent typical forest scenes in different parts of the country, particularly in the region of the National Forests, and are to be placed on top of the north wall case in the Wood Court. It is planned to install lighting fixtures behind these transparencies, so that what has been the darkest part of the space allotted to the wood collections will develop into one of the most attractive.

In order to acquaint Museum visitors with some of the unusual products which are now made from wood, appropriate exhibit material was solicited and received from the following cooperators: The New York State College of Forestry, Syracuse, New York, 22 specimens made from wood flour and wood pulp, comprising such articles as a wood flour phonograph record, wood flour linoleum, sawdust sausage casings, etc.; The U. S. Forest Products Laboratory, Madison, Wisconsin, 13 specimens of paper and bark products; and the Drake Process Incorporated, Cleveland, Ohio, 41 specimens of wood pulp, paper milk bottles, and other paper containers made therefrom.

Attempts to secure photographs illustrating forestry operations, methods of logging and lumbering in the five great forest regions of the United States, met with a ready response from two lumber organizations, who contributed original photographs specially taken for the National Museum. The Museum is thus indebted to the California Redwood Association for 20 photographs showing steps in the production of redwood lumber, from the time the mighty tree stands unmolested in the forest until, as lumber, it reposes in car or vessel awaiting shipment; and to the Southern Pine Association for another 20 photographs featuring southern yellow pine operations from tree to trade.

To the Brunswick-Balke-Collender Company of Chicago, Illinois, is due the thanks of the Museum for the gift of a finished, fancy-wood billiard cue, to supplement a similar cue in the rough, contributed by this firm more than a year ago.

Of special scientific value were the additions to the study collection of woods which were received from Messrs. W. R. Maxon and E. P. Killip of the division of plants, who collected for the Museum 14 species of Jamaican woods, and from Henry Pittier, Caracas, Venezuela, 324 small specimens of woods collected by him in Venezuela and Panama.

As accessions of importance other than those spoken of under textiles, medicines, and wood technology, there should be mentioned the transfer, by the Supervising Tea Examiner, Treasury Department, of 52 samples of official tea standards and three samples of unusual Chinese teas, comprising the standards used from 1915 to 1920, to control the importation of foreign teas into the United States, and to maintain a high standard for each commercial type.

The Museum is indebted to Wilson and Company, Chicago, Illinois, through their Chief Chemist, Mr. L. M. Tolman, for an extensive series of edible and inedible oils and fats obtained from cattle, sheep, and hogs. This collection represents an important branch of the meat-packing industry and includes in addition to oils and fats used

for food, the most important grades used for soaps, toilet articles, lubricants and textile finishes.

WORK OF PRESERVING AND INSTALLING THE COLLECTIONS.

During the autumn of 1919, practically the entire time of the curator, one assistant curator, and one preparator was occupied in unpacking, listing, and installing the extensive series of objects illustrating the work and equipment of the military hospitals of the U. S. Army, which was to form a part of the war collections. Three rooms and a part of the foyer on the ground floor of the Natural History Building were assigned to the division of medicine for this purpose. The whole series comprising over 4,000 objects was arranged to show:

(a) Field equipment in portable form for use in field and evacuation hospitals.

(b) Base hospital equipment and apparatus, especially that intended for overseas service.

The field equipment exhibited included the first aid kit and emergency belt worn by all enlisted men in the Medical Corps; field desks, field operating table, chests of medical supplies, surgical instruments and dressings; complete portable dental outfit, including operating chair and dental engine; emergency dental outfit of the most necessary supplies and instruments, packed in portable cases for carrying in the hand; field kitchen, portable disinfector, folding cot, water sterilizing outfit and portable steam sterilizer; also a field litter carrier, 3-stretcher Ford ambulance and standard G. M. C. 4-stretcher ambulance.

The specimens illustrating the important standard articles of equipment, instruments, and apparatus used in the base hospitals of the Army were grouped into 12 sections as follows:

1. The X-Ray Laboratory, containing all the important fixed and portable types of equipment, including a stationary X-Ray machine, interrupterless type, equipped with a high tension 100,000-volt transformer, synchronous motor, rectifier and controlling rheostat, milliammeter and automatic time switch; base hospital X-Ray table; standard tube stand for use with the table; a vertical Roentgenoscope for the examination of standing patients; a Wheatstone stereoscope for examining X-Ray photographic plates; a vertical stereoscope plate changer; and a complete set of localization apparatus. This room also contains a portable X-Ray outfit with gasoline electric generator, portable X-Ray table, and a bedside X-Ray unit for use in hospital wards. The wiring and setting up of this equipment was planned and supervised by Capt. A. P. Moora-

dian of the Surgeon General's Office, and will compare most favorably with that to be found in the best hospitals of the country.

2. The Hospital Ward, containing three standard beds, one mounted on a bed truck to permit of moving about, and equipped with back rest and bed cradle, another fitted with a Balkan frame to support leg splints for fracture cases, and a Carrel-Dakin infusion apparatus for wound irrigation, and the third bed arranged to show the use of T-bars in supporting a mosquito netting. In addition to the nurse's office equipped with desk, chair, typewriter, the usual writing conveniences and a set of the regular charts for reporting progress of the ward patients, this room contains a wheel chair, dressing carriage, cabinets for dressings and instruments, a food conveyor, water cooler, bedside tables and chairs, and two small divisions representing the linen room and utility room always associated with the hospital ward.

3. General Operating Room of a military hospital, containing standard operating table, instrument stand, bowl stand, tables with drums for sterilized dressings, wash bowls and bottles for antiseptic solutions, spot lights for concentrating light on operating table, and cabinets containing instruments for brain and plastic surgery, genito-urinary, and general operations. All the furniture in this room is finished in white enamel.

4. Anaesthesia Room, fitted with a wheeled stretcher for conveying patients to and from the operating room, Heidbrinck apparatus for administering nitrous oxide and oxygen gases, tanks for compressed gases, and equipment for administering ether and chloroform.

5. Eye, Ear, and Throat Clinic, containing eye treatment cases, electric sterilizer, powerful magnet for removing metallic bodies from the eye, and a standard instrument cabinet fitted with complete sets of instruments for eye, ear, and throat surgery.

6. Fracture Room, equipped with large Hawley table for reducing all kinds of bone fractures, bone extension apparatus, and a full assortment of all kinds of splints and crutches.

7. Dental Clinic, including operating chair, instrument cabinets, electrically operated dental engine and air compressor connected with a marble wall switchboard, also the furniture for a dental laboratory equipped with casting and vulcanizing apparatus, electric lathe, etc.

8. Sterilizing Room, containing a full sized steam generator, sterilizers for hot and cold water, utensils and instruments, and autoclaves for sterilizing dressings.

9. Bacteriological Laboratory, fitted with apparatus for preparing culture media, hot air and steam sterilizers for glassware, centrifuges operated by hand, water power and electricity, electrically controlled incubator, a water bath, and a compound microscope with all regular accessories.

10. Serological Laboratory, containing Wasserman bath, animal cage, inoculating equipment, etc.

11. Pathological Laboratory with paraffine bath, embedding apparatus, microtome, microscope, staining equipment and set of instruments for post-mortem work.

12. Chemical Laboratory, containing in addition to the usual equipment, special apparatus for the examination and analysis of water, blood, urine, etc., and a demonstration of the manner of preparing and standardizing Dakin's solution for use in the ward.

This comprehensive exhibit of the means placed in the hands of the medical officers of the U. S. Army, with which to fight the medical battles of the War of 1917-1918, was opened to the public on March 1, 1920, and has from the beginning attracted the attention of visitors. Former service men and their relatives and friends are all intensely interested in seeing the things that meant so much in the restoration of the sick or wounded soldier.

A special exhibit was arranged in the division of medicine for the benefit of the delegates in attendance on the 68th Annual Convention of the American Pharmaceutical Association, held May 5th to 10th, and the U. S. Pharmacopoeial Convention on May 11 and 12, 1920. The exhibit filled three cases on the East Gallery of the Arts and Industries Building, and comprised:

1. A collection of the Pharmacopoeias of practically every foreign country which authorizes such a standard;

2. The historical development of the United States Pharmacopoeia, beginning with the Edinburgh Pharmacopoeia of 1766 and the Pharmacopoeia of the Massachusetts Medical Society of 1808, the precursors of our U. S. Standard, which was shown in practically every edition;

3. The National Formulary, now official in the enforcement of the Pure Food and Drug Laws, and examples of the Homeopathic and Veterinary Pharmacopoeias;

4. A collection of Commentaries on the U. S. Pharmacopoeia, comprising many editions of the U. S. Dispensatory, the National Dispensatory, and the American Dispensatory, and digests and comments from the last Committee on Revision of the Pharmacopoeia;

5. Photographs of persons prominent in the American Pharmaceutical Association.

This exhibit as well as the study collections and sectional library was visited by many of the delegates in attendance upon the conventions. As the curator and assistant curator in charge of this division

are both members of the Washington branch of the association, the former being Vice-President, they made every effort to acquaint the pharmacists with what the National Museum is doing in this direction. Other exhibits installed in the division of medicine during the year comprised the following:

Two cases devoted to medicines obtained from inorganic materials; two to the subject of essential oils; one showing types of pharmaceutical balances, ancient and modern; a case showing sources, preparation and uses of two vegetable drugs, *cascara sagrada* and *nux vomica*; two cases showing preparation and use of vaccines and serums in combating smallpox, diphtheria, and lockjaw; two models illustrating distillation of essential oils, and a temporary installation of the "Medicinal Forms" exhibit.

In the section of wood technology the floor cases in the court were rearranged and seven new installations were made covering the following subjects: Cork, wood pulp and waste wood products, paper yarn and rugs, basket making machine, California redwood, and miscellaneous articles made from wood.

In the division of textiles nine new installations covering silks, yarns, and knitted fabrics were set up during the year.

A model of a peppermint still was made in the laboratory of the division, from drawings and photographs supplied by the foremost distiller of peppermint oil, and a 4-harness demonstration loom and appliances for warping the same were constructed under the supervision of the curator.

A large part of the time of one preparator was given to the making of gummed-letter labels for the objects in the hospital equipment exhibit, and for the cases in the exhibition halls.

The cataloging of new specimens has been kept up to date and the entire card catalogue of textiles and fibers have been classified and arranged under subject headings.

The examination and indexing of new textile terms and other special information contained in the large number of trade papers and periodicals sent to the sectional libraries of textiles, woods, medicines, and foods, has occupied the time of the preparators when not engaged in other duties.

The material accumulated between 1881 and 1911, which was crowded out from exhibition into storage before the occupation of the Natural History Building, is in need of overhauling. Some of the specimens have deteriorated through effects of time and changes in temperature, and should be condemned. All of the collections under the care of the curator have been carefully inspected for insects, and all the materials like wools and foodstuffs have been fumigated several times. Several of the large panels of Philippine

woods became badly warped, due to having been varnished on one side and the wood not filled or shellaced on the other. The largest of these pieces was soaked with water and brought back to shape with clamps. Large T-iron braces were then screwed on and the back given two coats of shellac. Three samples of crude drugs contributed by Gilpin, Langdon and Company, Incorporated, of Baltimore, Maryland, were returned to the company and replaced with new specimens. The storage rooms devoted to textiles and woods in the Smithsonian basement were given a thorough overhauling and cleaning, and the wood specimens carefully marked, numbered, and repacked to take up less space.

RESEARCHES FOR THE BENEFIT OF THE MUSEUM.

No special investigations or work of a research nature was undertaken during the year by this division owing to every member of the staff being engaged for the most part upon the war collections.

During the annual meeting of the American Association of Museums held at the National Museum, May 17-19, 1920, several museum experts from other institutions made a careful examination of the methods of cataloging and indexing used by this division, as a special exhibit and demonstration of our catalogue had been prepared for their benefit.

Mr. J. F. Clevenger of the Pharmacognosy Laboratory of the Bureau of Chemistry, U. S. Department of Agriculture, made frequent use of the study collections in the division of medicine for identifying and comparing commercial drugs submitted to that laboratory under the Food and Drugs Act.

During the meetings of the American Pharmaceutical Association, May 5-9, the U. S. Pharmacopoeial Convention, May 10-12, and the Medical Library Association, May 20-22, 1920, the exhibition and study collections representing pharmacy, materia medica, and medicine, were visited and studied by a great many of the delegates representing all parts of the United States, who expressed to the curator and assistant curator their appreciation of the work already done.

Miss Eva W. Magoon, Instructor of Embryology and Curator of the Museum of the Chicago College of Osteopathy, visited the Museum for the purpose of studying the methods of installation and labelling in use by the division of medicine.

Mr. R. E. Lofton, of the Textile and Paper Divisions, Bureau of Standards, made several visits to the Museum for the purpose of conferring on fibers and paper materials, and of consulting the technical books in the sectional libraries.

Mr. F. W. Day, of Detroit, Michigan, a collector of canes, spent parts of two days studying the Museum's collection of canes and

Philippine woods, and in attempting to identify specimens from his own collection.

Prof. Alfred F. Barker, Professor of Textile Industries at Leeds University, England, during his visit to the United States last summer to study the American wool industry, made a special trip to Washington to look over the work being done in this division. Through the U. S. Consul at Bradford, England, Professor Barker furnished the National Museum, several years ago, with a fine series of specimens illustrating the manufacture of various wool textiles.

Numerous visitors made inquiry at the curator's office in search of special information suggested by the exhibits, and made particular use of the technical books in the sectional library. The curator furnished special information on industrial raw materials and the identification of specimens, from time to time during the year, to the Commercial Museum, Philadelphia, Pennsylvania; Salvage Board, Department of Ordnance, War Department; Shipping Board; Bureau of Foreign and Domestic Commerce, Department of Commerce; Bureaus of Chemistry and Plant Industry, Department of Agriculture. The identification of specimens of fibers and fabrics, gums, resins, seeds, and woods for numerous individuals, both in and out of the Government service, has been a regular part of the work of this division. The curator has also furnished the identification of the cottons and cotton seeds introduced by the Office of Foreign Seed and Plant Introduction and Distribution, Department of Agriculture; and for inquirers outside of the Government service he has supplied information on the following subjects:

Pure dye silks, manufacture of glucose, use of snow crystals and aboriginal fabrics as motifs in design, methods of wax resist dyeing for batik work, status of the wool market, the importance of color in manufacturing industries, uses of ivory and the raw commercial products of Africa.

Bibliographical compilations were supplied on the following subjects: Glue manufacture, physical effects of the use of tobacco, history of rubber and vulcanization, wax resist dyeing, sewing and costume design, and hand-loom weaving.

The assistant curator, section of wood technology, furnished information to outsiders on the following subjects: Suitability of certain South American woods for cabinet making, production of alcohol from wood waste, rope knots and splices, the "big trees" of Australia, process of extraction of tannin from hemlock bark, tree flora of the West Indies, and uses of the cabbage palmetto. He also determined the identification of a number of wood specimens.

The curator was invited to deliver a lecture before the Royal Canadian Institute of Toronto, Ontario, on February 21, 1920. This invitation was accepted and a lecture on "The Production and Manu-

facture of Raw Silk," illustrated by colored lantern slides, was given by him on that date. Several groups of school children from public and private schools of Washington and vicinity, were given talks on the textile collections by the curator. He also arranged for lectures and demonstrations at the Museum to classes of young ladies from the National Park Seminary, Forest Glen, Maryland, and to the class in home economics of the Maryland State College of Agriculture, at College Park.

Special thanks are due Dr. Murray Galt Motter, Librarian of the Hygienic Laboratory, Washington City; to Dr. W. A. Dewey, Registrar of the Homeopathic Medical School, University of Michigan, Ann Arbor, Michigan; and to Dr. J. H. Shrader, Specialist in Oils, Bureau of Plant Industry, Washington City, for their splendid cooperation in arranging by correspondence for the contribution of specimens to the Museum, and for making use of every opportunity of presenting the needs of the Museum to persons in a position to render assistance.

REPORT ON THE DIVISION OF MINERAL TECHNOLOGY,

By CHESTER G. GILBERT, *Honorary Associate Curator.*

The year proved a signally unfortunate one for the division of mineral technology. At the very outset Mr. Mitman, assistant curator in charge of the metallic section, was transferred to the division of mechanical technology which offered opportunity for his well deserved advancement to the rank of curator, and where, at the time, it seemed his training and experience were more urgently needed. Before a month had passed it became evident that this was not to be the only loss in personnel and organization in store for the division; and with the ending of the second month Doctor Pogue, associate curator in charge of the nonmetallic section, resigned to head the economic department of the Sinclair Consolidated Oil Corporation. Shortly afterward Mr. Gilbert, the curator of the division, himself resigned to open an office in Washington as resident manager and consulting engineer for Arthur D. Little, Incorporated, taking with him as his secretary Mrs. Galloway from her earlier connection with the division. As associate curator on an honorary basis Mr. Gilbert continued in advisory supervision over what from the beginning of 1913 was developed under his direction; but under the salary handicap responsible for the loss of personnel, all effort to reconstitute a competent working organization proved unavailing, and at this writing the offices assigned to mineral technology are still unoccupied.

Lacking in organization the division of mineral technology was as signally lacking in achievement during the year. Under the fairly normal conditions prevailing two years back, thirty-three accessions were assembled, and even the following year of the war the number kept up to five. Last year the number dropped to one. To this, a working model of a salt works, however, should be added another exhibit comprising a series of transparencies and type specimens which, though pertaining to an earlier accession and entered as such, figure in the year's expansion.

The model was donated by the Worcester Salt Company, of New York City, and is a replica of that company's highly developed operations near Warsaw, in New York State. It is a working model in the truest sense. Everything works and everybody as well. With ingenuity quite equally remarkable in the actual operations and in

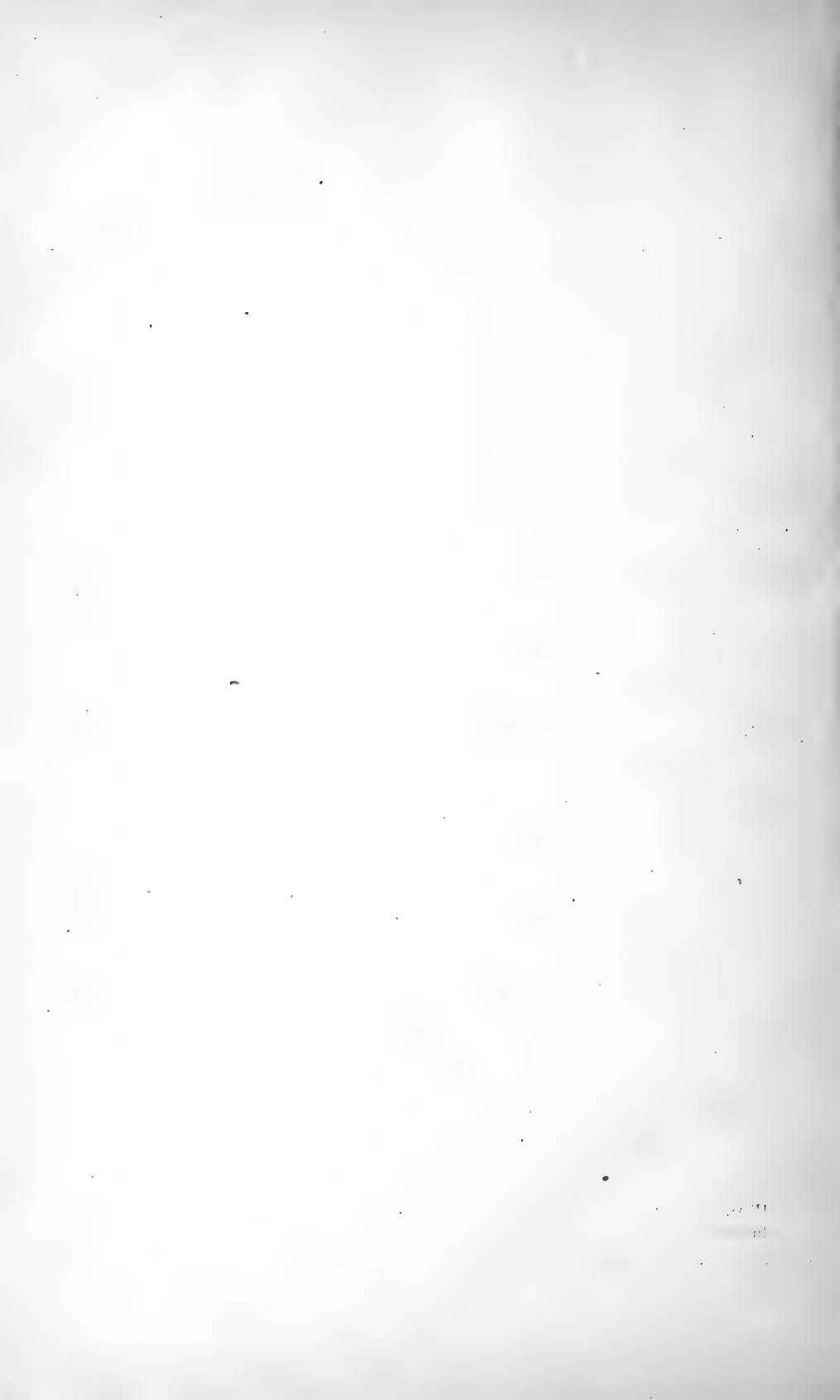
the model, a system of circulating water is caused to mine the native salt, bring it in solution to the surface, and finally to surrender it over as required whether coarse and cheap or purified to the last degree of refinement for table use. The whole sequence takes place in plain view before the visitor's eyes, while the operatives at their posts about the plant perform their various tasks and the women at their sewing machines stitch up the bags with highly commendable even though perfunctory attention to the work in hand. The plant, in short, is a model plant in every respect, and a fascinating as well as instructive exhibit.

The other contribution comprising twenty-six large transparencies and upward of six hundred exhibition samples, was donated by the National Lead Company. Several years ago this company undertook to collaborate with the Museum in developing a comprehensive exhibit to visualize the working of the lead industry and its relationship to public welfare. The progress of the undertaking has been reported from year to year, and with this latest addition the project, for its consummation, may be said to need only a systematic work of installation under competent technical direction.

The needs in this direction are not confined to the lead exhibit alone but are in evidence throughout the exhibits in mineral technology. The prime object in view for the division at the outset of its organized activities was to obtain latitude in depicting the industrial operations and their social bearing. Taken with reference to any one mineral industry by itself, such is a large undertaking. The Worcester Salt Company, for instance, had a force at work continuously for upward of five years in the preparation of the salt exhibit; from the time the National Lead Company let the contract for its miniature white-lead plant, two years and more elapsed before the contract was fully executed. Work of a similar nature has been done to better advantage under Museum direction but has commonly taken upward of a year; and this visualizing of the industrial operations is not the end point; rather it is but the beginning, the nucleus around which to develop the economic significance of our mineral resources. To have concentrated on any one theme until complete, with the facilities at hand, would have been to narrow down the scope of instruction afforded for years ahead. Rather, as already stated, it seemed best to make the exhibits cover the field of metals and nonmetals inclusively even though sketchily to begin with. Without dwelling on any one to completion the scope of activities was steadily widened and the addition of the salt exhibit brings the total to twenty. This means that about half of the important types of mineral occurrence are represented. None is complete; mostly they go no further than

to depict the industrial processes of mining, milling, and manufacture; some show only the material stages from the native occurrence to the finished product; scarcely any may be said to deal adequately with the economic aspects, the most difficult and at the same time the paramount issue in the undertaking. For coal, glass, lead, natural gas, asphalt, the cements-lime-plaster group, and for several of the minor minerals what is chiefly needed is a thorough-going attention to the work of arrangement and labelling. All the others still have gaps in what is materially available; but even these would be greatly enhanced as to worth by a like attention to the latent possibilities afforded in what is at hand.

As matters stand at this writing less than half of the mineral resource field has been covered. Additional exhibits are needed and those already assembled need amplifying. To make up these deficiencies, however, the Museum must look to cultivating the industrial interests involved rather than to its own resources; for only in this way can it hope to meet the tests or keep the instructive worth of the work alive to the issues of the day. From past experience industrial cooperation may be counted on, but the Museum must take the initiative and at the same time be prepared to produce results. This need for widening the scope of the exhibits calls for systematic attention especially in connection with the metals, where, with the exception of lead, the representation is woefully inadequate. Of paramount importance, however, is the need for systematically arranging, labelling, and otherwise bringing out the full potentiality afforded in what is already on display. As already stated, the focus of attention earlier in the division's development was to give scope to its offering even at the cost of thoroughness. While the results are still far short of covering the whole field, their range has come to be such that the Museum can well afford to turn its energies more toward perfecting what has been assembled. This is the Museum's responsibility to its industrial cooperators no less than to the public, and if it is to go on profiting from industrial cooperation it must render a favorable accounting for what it has already received. The first essential is, of course, to reconstitute the division on an active working basis, and the work primarily in hand is that of rounding out the division's twenty exhibits and providing for their effective display.



REPORT ON THE DIVISION OF MECHANICAL TECHNOLOGY,

By CARL W. MITMAN, *Curator.*

History.—The first day of the fiscal year saw the division transferred from the department of anthropology to that of arts and industries with the writer in charge as curator of the division. Shortly thereafter, Mr. R. G. Paine, aid, was transferred to the division of American archeology and the care of the collections devolved upon the curator and Miss Barbara E. Bartlett, clerk. The urgency of having a complete card index of the collections of the division necessitated the temporary employment of a typewriter. On February 13, 1920, Mr. George W. Spier, Washington City, became associated with the division as honorary custodian of watches. In this capacity, Mr. Spier has in his charge the Museum's collection of watches numbering over 450 specimens and plans to arrange popular and scientific exhibits of the art of time-keeping. Mr. R. Luther Reed, a faithful and efficient employee of the Museum and Smithsonian Institution for over forty years, and carpenter for the division for the past five years, died on April 26, 1920. The loss of his services was keenly felt by the division and the need of assistance of this general nature resulted in the appointment on June 1, 1920, of Mr. Paul E. Garber as preparator.

Accessions.—During the year, 11 accessions were received comprising 97 specimens which were distributed as follows: Transportation, 66; metrology, 7; firearms, 12; machinery, 12. All of the accessions constitute voluntary offerings to the Museum, for the year was spent wholly in the reorganization and rearrangement of the collections on hand with no effort made toward procuring new material. In comparison therefore with the accessions received the previous year, namely 16, totalling 192 specimens, the showing is rather poor, but over and against this it is believed that the collections are in a far better condition than ever before.

By far the most important accession was a standard twelve cylinder Liberty airplane motor made expressly for and presented to the Museum by the Lincoln Motor Company, Detroit, Michigan. Various portions of the motor are cut away disclosing the interior parts in operative relation which makes a most instructive exhibit, particularly so when studied in conjunction with the motor of the Langley aerodrome situated along side.

Another accession of note was that of a sundial given by Mr. Claude L. Woolley, Baltimore, Maryland. It is of the horizontal type, adapted to the latitude of London, England, North latitude $51^{\circ} 27'$ and is so constructed that it can be adjusted to give accurate time throughout the year without consulting the table of equations of time. Including this most recent accession, Mr. Woolley has presented a total of twenty sundials which, added to the Museum's collection, make it complete in-so-far as being representative of all the different forms.

The United States Senate Committee on Commerce, through Senator Wesley L. Jones, chairman, transferred to the Museum a model of the steam freight-ship "Shohokin" built at the Hog Island Ship Yards during the year 1919. The accession is not only of interest as evidence of the rejuvenation of American ship building but forms a most valuable addition to the exhibits of naval architecture illustrating the development of steam navigation.

Mr. Spier, honorary custodian of watches, presented a beautiful specimen of the mandolin-shaped watch in vogue about the beginning of the 19th century, the only representative of this type in the division's collection; an English made watch of the middle of the 19th century, the case and dial of which are of solid gold, beautifully engraved; and a panel upon which is mounted the parts of a Waltham watch.

Mr. Hiram Austin Burt, Bangor, Maine, presented a replica of the original typographer invented and patented by his grandfather, William Austin Burt, July 23, 1829. The instrument is representative of the very early beginnings of the American typewriter which was not represented in the Museum's exhibits bearing on this subject. The gift therefore greatly enhances the educational value of this collection.

Other accessions worthy of note were: A gas engine magneto fitted with a device called an "impulse starter" for use on engines cranked by hand, the gift of the Eisemann Magneto Corporation, Brooklyn, New York. A collection of automobile spark plugs and tire vulcanizers comprising 63 specimens, loaned by Mr. Ransom Matthews, Selma, California. An Adams revolver, 1851; a Mauser rifle and a Mauser carbine, made in Germany for the Argentine Government, presented by Colonel Henry May of Washington City. Two shot-guns and three revolvers not represented in the division's collections of firearms and several models representative of Philippine arts and industries, the gift of General Jacob Kline, United States Army, through Mrs. Thomas F. Dwyer and Miss Kathleen C. Kline, Washington City. A Burt solar compass and brass projector, transferred from the United States Geological Survey and added to the division's

section of metrology. A muzzle-loading pistol with hammer underneath the barrel made by Robbins, Kendall and Lawrence, Windsor, Vermont, in 1846, lent by Mr. J. R. Howe, Fairhaven, Massachusetts.

Activities.—Activities of the division's force during the whole year were devoted almost exclusively to caring for the collections, the work being confined, first, to a rearrangement of the material on exhibition and second to the preparation of a card index catalogue of the collections.

The rearrangement of the collections on exhibition was based upon the fact that the objects comprising the collections relate, in the majority of instances, to one or another of several groups of subjects. These are, land and aerial transportation, naval architecture, metrology, mechanical transmission of intelligence, mechanical and electrical invention, and firearms. The work accordingly involved the reserving of a certain portion of the total exhibition space for each of these groups, the area being commensurate with the present size (volume) of the various collections plus an allowance for expansion, and bringing together within the area all related material. Thus, to the East hall, No. 15 area, were assigned the groups of land transportation, aerial transportation, and mechanical and electrical invention; to hall No. 22, the naval architecture group; to hall No. 21, the metrology and mechanical transmission of intelligence groups; and to hall No. 23, the firearms group.

The collections were not only arranged in this general way but also were further sub-divided within each group. For example, the main group, mechanical transmission of intelligence, was subdivided into telegraph, telephone, talking machine, and typewriter, and the objects relating to these special subjects were installed as a unit within the main group.

Certain specimens in the division being of greater educational value elsewhere in the Museum were accordingly so transferred, 51 Patent Office models of power looms and sewing machines to the division of textiles, an automatic basket-making machine to the section of wood technology, 17 Patent Office models of printing presses to the division of graphic arts, and 60 objects composing the collection of cables, diplomas, books, etc., belonging to Cyrus W. Field to the division of history.

Watches.—To relieve the shortage of exhibition space, the majority of watches were withdrawn from exhibition, the selection of specimens for continued exhibition being made according to their value in illustrating the important steps in the development of the watch. Those watches withdrawn are being arranged as a study series in glass covered drawers in the division's offices where they will be available to those particularly interested in the subject of horology.

Card catalogue.—To make a complete and up-to-date card system of the collections constituted the second line of activity and it is gratifying to report that the index was practically completed by the close of the year. The system includes: An accession file, one card for each accession arranged alphabetically according to the source of the objects; a subject file made up of cards of individual specimens arranged according to catalogue numbers and under the subject to which the specimen relates, (this file contains a card for each and every object in the care of the division); a storage file made by withdrawing those cards from the subject file relating to specimens which are stored and replacing them with cards upon which reference is made to the storage file. In this way, the cards in the subject file relate entirely to specimens which are on exhibition.

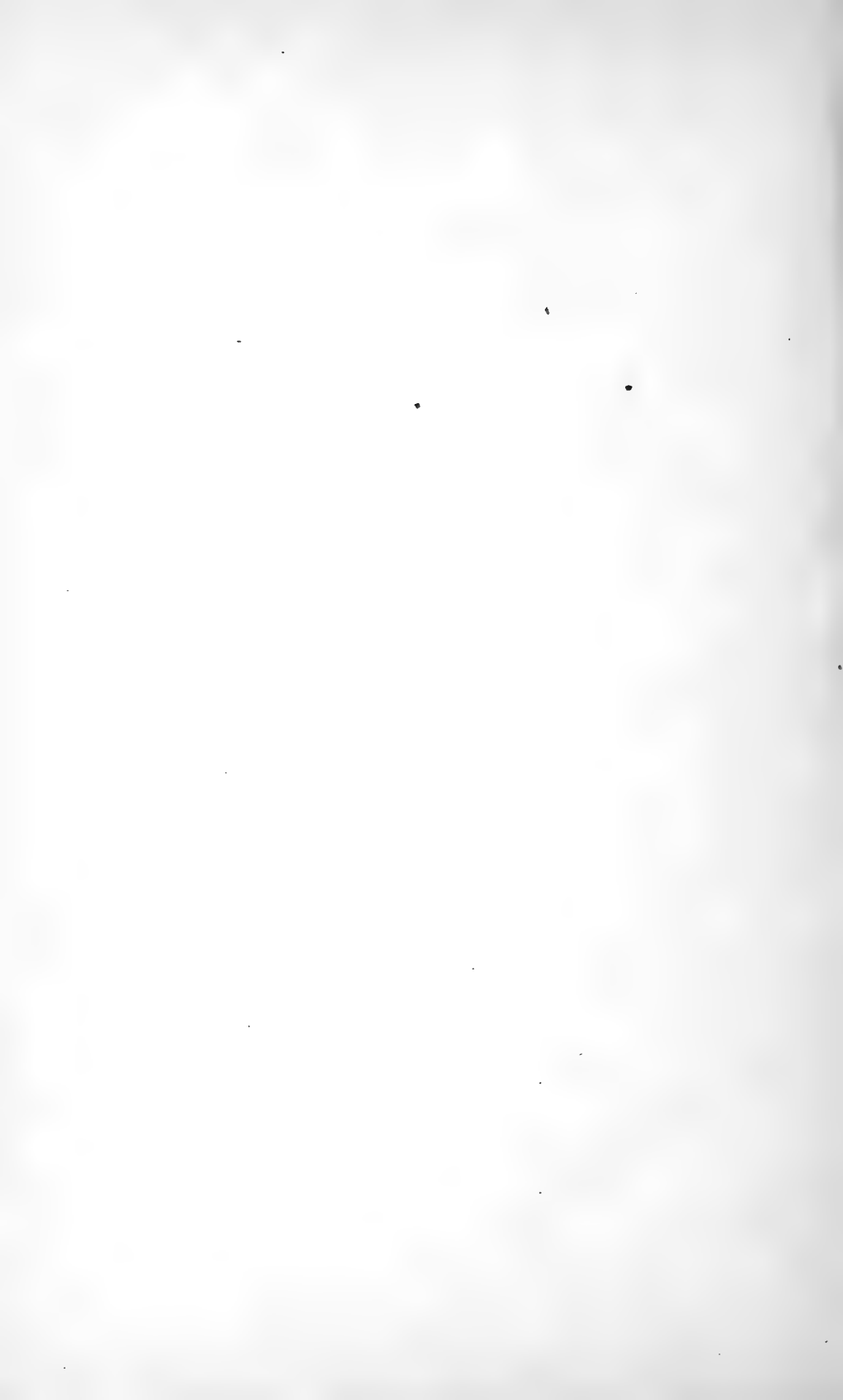
At the present time it may be said that the collections are in very good condition and are about in shape for the part they will play in the future development of the division.

Development.—The division of mechanical technology is made up of the earlier organized sections of naval architecture, transportation, electricity and, if so it may be called, mechanical invention. Each of these sections was developed almost independently of the other and when brought together as one division, subsequently, the whole was found to lack and still does lack that inter-relationship of exhibits which is so essential in popular educational work. The reason lies in the fact that the common source (mechanical power) from which each of these branches of mechanical arts has sprung is not in evidence, and the plans for the future development of the division include the construction of comprehensive exhibits upon the subject of mechanical power. Again, to visualize the extent to which mechanical power is utilized and its bearing upon the things of everyday experience, both models of machines and full-size machines have been used. But, to be at all inclusive, exhibition space comparable to that now devoted to the whole department of arts and industries would be required,—nor are models of full-size, complete machines of much educational value because of their complicated nature. In view of these facts, therefore, a second field of endeavor will be to develop a series of working models of fundamental mechanical movements and motions, indicating by label the machines in which one or another of these motions is of importance. Progress in these two directions will naturally develop gaps between the present exhibits and those in course of construction so that a third line of activity will be to connect the old with the new. Still another line of work to be undertaken, in fact, already started, is the construction of a series of accurate scale models illustrating the development of the flying machine. While the experimentors in aircraft

have been many, it is conceded that the important steps in the development of the art to its present state of refinements, were made through the efforts of about twenty of them. It is the work of these men which will be represented in the series beginning with Leonardo da Vinci in the 15th century and ending with Martin. Upon completion of this series, a second will be constructed illustrating all of the modern types of machines.

The collections of the division relate primarily to engineering, particularly mechanical, electrical, civil, and marine engineering, and back of all the proposed plans is the idea of building upon this foundation a true Museum of Engineering.

Museums devoted to history, art, and the natural sciences are established in all of the larger nations of the world and many of them have established, in addition, educational museums of engineering and industries. Thus, England has her South Kensington Museum; France her Conservatoire des Arts et Métiers; and Germany her Deutsches Museum, but nowhere in this nation of ours, the most advanced in the application of the engineering and mechanical arts, is there a similar institution. The commanding place in the world which the United States has reached in the short space of seventy-five years is due largely to the full development and utilization of mechanical power in the exploitation of her natural resources. It is this that has made it possible for the people of the United States to enjoy a standard of living far and above that under which the peoples of the rest of the world exist and still no public sign of appreciation either national or otherwise is to be found anywhere. What more suitable monument could there be, therefore, than a Museum of Engineering, and where could there be found a more logical place for it than as a part of the great National Museum?



LIST OF ACCESSIONS TO THE COLLECTIONS DURING THE FISCAL YEAR 1919-1920.

(Except when otherwise indicated, the specimens were presented or were transferred by bureaus of the Government in accordance with law.)

ABBOT, DR. CHARLES G., Smithsonian Institution: A collection of natural history objects collected in Chile, consisting of marine invertebrates, insects, spiders, scorpions, mice, a lizard, plants and geological specimens (64048).

ABBOT, L. H. (See under A. F. Moore).

ABBOTT, DR. WILLIAM L., Philadelphia, Pa.: 277 birds, 43 birds eggs and 1 nest, 3 skeletons of birds, 29 mammals, 7 reptiles, 1 fish, 16 packages of shells, 52 plants, insects, a native basket, archeological objects, all from Santo Domingo (63820, 64239, 64450); small lot of mammals, birds, reptiles, and shells from Haiti and San Domingo (64287); 240 mammals, 228 birds, 28 reptiles, small collection of shells, small collection of insects, and 3 stone implements collected by Charles M. Hoy in Australia (64706).

(See also under Private T. A. Brennan, U. S. M. C., and C. Boden Kloss).

ABRAMS, Prof. LeROY, Leland Stanford Junior University, Stanford University, Calif.: 3 plants, *Juncus*, from California (64433, exchange).

ACADEMY OF NATURAL SCIENCES, Philadelphia, Pa.: 557 plants from Alberta and British Columbia (64059); 2 slabs of the Cleveland, Tennessee, meteoric iron (64473); 11 minerals from Pennsylvania (64705). Exchange.

ADAMS, J. B., Stuart, Fla.: Skin of Ward's heron, *Ardea herodias wardi*, from Florida (63844).

ADEE, Hon. ALVEY A. (See under Hon. Hoffman Philip.)

AGRICULTURE, DEPARTMENT OF:

Bureau of Animal Industry: 6 photographs of domestic animals (64698).

Bureau of Biological Survey: 38 Diptera and 650 Hymenoptera (63821); 9 land mollusks from Outer Island, Apostles, Wisconsin, collected July 6-11, 1919, by A. J. Poole (63903); 6 crayfish from Louisiana (63916); 70 plants from Florida, collected by A. H. Howell (63935); 57 birds (alcoholics and skeletons) from the western United States (64014); 282 mammal skins, 284 mammal skulls, 38 mammal skeletons, 16 alcoholic mammals, 136 birds skins, 14 bird skeletons, bird skull, 2 sets of birds eggs, 15 alcoholic reptiles, 61 alcoholic batrachians, 2 alcoholic fishes, and 21 mollusks, collected in France by Major Goldman and his staff, Lieutenant Harper, Sergeant Kellogg, and Corporal Plummer (64121); 38 skeletons of birds from Florida and France (64169); 20 + crustaceans, *Apus* species, collected 20 miles south of Malta, Montana, July 15, 1919, by Messrs. Malleis and Hanna (64318); 877 named insects including 258 species of Coleoptera, 52 species of Diptera, and 20 species of miscellaneous insects (64421); 940 Coleoptera representing 153 spe-

AGRICULTURE, DEPARTMENT OF

—Continued.

cies (64438); 4 mollusks representing 2 species and 3 crustaceans representing 2 species from Swan Lake, Minnesota (64448); 1609 Coleoptera representing 219 species, 205 Heteroptera representing 19 species, and 11 Homoptera representing 1 species (64574); 330 plants from the United States (64577); 8 marine mollusks representing 6 species collected by C. H. M. Barrett on Hurricane Island, St. Andrews Bay, Florida (64699); 4 amphipod crustaceans representing 3 species from St. Paul Island, Alaska (64727); collection of conifers from the United States (64805); fragments of 2 crabs from Alaska (64873); 88 alcoholic and 1 skeleton of birds and 28 reptiles and batrachians (63882).

(See also under Dr. J. D. Mitchell).

Bureau of Entomology: 1000 insects, Orthoptera and Neuroptera (63822); 600 slides of red-spiders (63823); plant, *Sarcophagus reticulatus*, from Haiti (63966); amphipod, *Crangonyx*, species from a well, collected by F. E. Brooks at French Creek, West Virginia (64010); snail, *Polygyra thyroides*, found at Arlington, Virginia (64208); 3 photographs of insects yielding products used in medicine (64715); 21 mollusks representing the species *Subulina octona*, collected by E. L. Chambers on soil in rose houses, Roelof, Pennsylvania (64754); 10 wasps, *Telenomus*, representing types of 2 species described by A. M. Wilcox (64836); 11 isopod crustaceans, *Porcellio rathkei*, from Barnaveldt, New York (64847).

(See also under S. F. Blake).

AGRICULTURE, DEPARTMENT OF

—Continued.

Federal Horticultural Board: 2 isopods collected at Washington Quarantine House on pineapple shoots from the Botanic Station at Montserrat, West Indies (64358); 3 isopods representing 2 species from nursery stock (64548); 3 isopods, *Philoscia* species, on nursery stock from Rio de Janeiro, Brazil (64554); 3 earthworms collected at quarantine, Washington City, in earth about the roots of nursery stock, received from Rio de Janeiro, Brazil (64596); 20 mollusks, *Subulina octona*, collected on *Dracaena wolsii*, Norwood, Pennsylvania, Sept. 12, 1919 (64630); snail collected at quarantine, Washington City, about the roots of *Chamaedorea* species, Pacaya or salad palm, from Coban, Guatemala (64636); 4 earthworms representing probably 3 species taken at quarantine, Washington City, from soil about the roots of *Chamaedorea*, species, from Coban, Guatemala, F. H. B. No. 29456 (64747); isopod, *Porcellio laevis*, from dahlias from Clingford, Essex, England, taken at quarantine, Washington City (64019); 3 isopods, 1 species, from Mexico City, Mexico (65035).

Forest Service: Type specimen and 2 photographs of a plant, *Pentstemon mensarum*, from Colorado (64354); 48 enlarged colored bromides and 25 transparencies picturing various phases of forestry (65087).

Forest Service, Forest Products Laboratory, Madison, Wis.: 13 specimens of textile and other products made from wood and wood pulp paper (64839).

Bureau of Plant Industry: 4 plants from Nova Scotia (63797); 215

AGRICULTURE, DEPARTMENT OF
—Continued.

mounted grasses (63798); specimens of a cultivated plant (63859); (through Mr. A. S. Hitchcock) 3,000 North American grasses; 6 plants from Hawaii; 1,023 grasses (63869, 65007, 65060); 854 plants collected in British Guiana by Mr. Hitchcock (64987); 215 plants collected in Mexico by Mr. E. O. Wooton (64214); 3 plants from Texas and Arizona collected by Mr. T. H. Kearney (64272); 44 plants, chiefly from Brazil (64365, 64831); type specimen of plant, *Chenopodium nuttalliae* (64375); 103 plants collected in Guatemala and Honduras by Mr. H. Pittier (64567); 70 plants collected in Guatemala and Honduras by Messrs. H. N. Whitford and L. R. Stadtmiller (64587); 16 cryptograms, chiefly from the United States (64588); (through Mr. L. H. Dewey) 2 specimens of mosses, *Sphagnum*, from Mexico (64610); plant from Georgia (64617); 337 plants collected in Florida by Mr. W. E. Safford (64634); (through Mr. W. E. Safford) 835 specimens of plants from Mexico (64925); 94 plants from Guatemala, and section of Honduras mahogany, *Swietenia macrophylla*, all from Guatemala, Central America (64704, 64845, 64969); 20 plants (64829); 12 plants from Mexico (64915); specimens of a plant from Texas (64986); 62 plants from Sinaloa, Mexico (64992); 2 plants (65044); 875 plants collected in China by Mr. J. B. Norton (65009).

AGRICULTURE RESEARCH INSTITUTE, Pusa, Bihar, India (through Mr. M. Fletcher, Imperial Entomologist): 61 Indian sawflies (64733).

ALBERT MANUFACTURING COMPANY, Hillsborough, New Brunswick, Canada: Crystals of the mineral inyoite gypsum (64500).

ALDRICH, Dr. J. M., U. S. National Museum: 1334 Diptera and 58 other insects (64141).

ALDRICH, Hon. T. H., Birmingham, Ala.: Type of mollusk, *Scatenostoma aldrichi*, from Choctawhatchee Marl from Clarksville, Calhoun County, Florida (64622).

ALEXANDER, THOMSON H. (through Mrs. Thomson H. Alexander, New York City): 2 china cups and 2 saucers owned by Frederick the Great, china gravy boat owned by Louis Philippe, and a meerschaum pipe presented to Sir Frederick Hankey by the Grand Vizier of Turkey in 1830, silver keyed flute, Germany, 19th century, and Chinese thumb ring lined with gold (63880, bequest).

ALLEN, ANDREW HUSSEY, Washington, D. C. (through Mrs. Julian-James): A small piece of ribbon, brocaded in colors, early 19th century (63926).

ALLMAN, NORMAN F., American Vice Consul in Charge, Tsinanfu, China (through Department of State): 3 original photographs showing the burning of about \$10,000 worth of confiscated opium at Tsinanfu, on March 21, 1920 (65106).

AMERICAN COLORTYPE COMPANY, New York City: 4 colortype plates of medicinal plants (64565).

AMERICAN FLYER MANUFACTURING COMPANY, Chicago, Ill.: "American Flyer" train, sample of toy made in the United States during the World War, 1914-1918 (64583).

AMERICAN INSTITUTE OF HOMEOPATHY, Chicago, Ill. (through Dr. W. A. Dewey): Transactions of the American Institute of Homeopathy for 1876, Volumes 1 and 2 (64811).

(See also under Dr. Lyman A. Martin).

AMERICAN MUSEUM OF NATURAL HISTORY, New York City: Caribou skin and skull, *Rangifer pearyi* (63811, exchange); 666 bird skins from Colombia (63953, exchange); casts of upper and lower dentition of the fossil mammal, *Trilophodon scridus* (64140).

AMERICAN PAPER AND PULP ASSOCIATION, Watertown, N. Y.: 9 samples showing successive stages in manufacture of paper from spruce wood (64952).

AMERICAN NATIONAL RED CROSS, THE, Washington, D. C. (through Stockton Axson, Chairman Museum Committee): An oil painting "Portrait of San Lorenzo Guistinuano" attributed to Gentile Bellini, presented to the American Red Cross by the City of Venice in token of its gratitude for the work of the American Red Cross (64236, loan).

AMERICAN SECURITY AND TRUST COMPANY, THE (See under Miss Viola Walden Myer).

ANDREWS, Mrs. EMILY K. (through Gen. George L. Andrews, U. S. Army (retired), Washington, D. C.): Painting by George Inness entitled "Elf Ground" (64686).

ANECT, Rev. BROTHER, St. Paul's College, Covington, La., and Sacred Heart Training College, Las Vegas, N. M.: 40 plants from Louisiana, and 3,000 plants from New Mexico (63875, 64397).

ARGENTAN (ORNE), FRANCE, CITIZENS OF (through Department of State): Piece of lace made by the Benedictine sisters of Argentan, France, and presented by the citizens of the town to the United States in commemoration of American-French relations during the

ARGENTAN (ORNE), FRANCE, CITIZENS OF—Continued.

World War, with special reference to the aid given the French ambulances by the American Red Cross (65039).

ARISTE-JOSEPH, BROTHER, Instituto de la Salle, Bogota, Colombia: 250 plants from Colombia, and specimens of paper currency mainly from Colombia (64641, 64891).

(See also under Instituto de la Salle, Bogota, Colombia.)

ARMOUR AND COMPANY, Chicago, Ill.: A series of 10 photographs illustrating processes in the preparation of organotherapeutic medicines; 12 medicinal preparations made from animal products (64044, 64975).

ARMSTRONG, E. J., Erie, Pa.: 500 Middle and Upper Devonian fossils from western New York (63857).

ARNOLD, RALPH, New York City: Four mollusks, 2 of *Lampsilis luteolus* from Christina river, northern Alberta, and 2 species of gastropods from a small lake between Christina river and Lac la Biche (63805).

ARSENE, BROTHER G., Saint Thomas' College, Scranton, Pa., and St. Paul's College, Covington, La.: 740 plants from Maryland and Louisiana (63806, 64670).

ARSENEFF, W. K., Grodekoff's Museum, Habarovsk, Siberia (through U. S. Consulate, Vladivostok, Siberia): Collection of fetiches from tribes of Eastern Siberia (63792).

ARTHUR, Dr. J. C., Purdue University, Lafayette, Ind.: Specimen of rust and a plant from Nevada (63794, 64484).

ASBURY, CHARLES E., American Consul, Port Antonio, Jamaica (through Department of State): Sea urchin, *Metalia pectoralis*, collected at Port Antonio, Jamaica, by the donor (64190).

AUSTRALIA, GOVERNMENT OF (through Department of State): 29 original drawings by Lieut. Will Dyson of the Australian Expeditionary Forces (63861).

- AUSTRALIAN MUSEUM, THE (See under Sydney, New South Wales, Australia).
- AXSON, STOCKTON. (See under American National Red Cross.)
- BAER, JOHN L. (See under T. Dale Stewart).
- BAGG, Prof. RUFUS M., Appleton, Wis.: A collection comprising 26 lots of miscellaneous geological material (64544, exchange).
- BAIN, MRS. H. FOSTER, U. S. Postal Agency, Shanghai, China: Collection of Oriental Ethno-art objects (64999, loan).
- BAKER, A. B., National Zoological Park, Washington, D. C.: Garter snake, *Thamnophis sirtalis sirtalis*, from the Park (64604).
- BAKER, Prof. C. F., College of Agriculture, Los Banos, P. I.: 33 Philippine wasps of the subfamily Pseninae, determined by S. A. Rohwer (64825).
- BAKER, Dr. FRANK C., University of Illinois, Urbana, Ill.: 4 recent mollusks, *Planorbis pseudotrivolvis*, and 65 specimens, 2 species of Pleistocene fossil mollusks, *Planorbis atissimus* and *Annicola winkleyi leightoni*, topotypes of species recently described by the donor, from Illinois and Ohio (64980).
- BAKER, Dr. F. H., Richmond, Victoria, Australia: 20 marine mollusks representing 5 species and 2 echinoderms from Australia; also insects (64656, exchange).
- BAKER, T. H., Baltimore, Md.: Ethnological and archeological objects from the United States and Mexico (7 specimens) (64857, exchange).
- BAKER, Dr. W. FRANKLIN, Philadelphia, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 4 photographs of pathological specimens showing the action of small doses of homeopathic dilutions given to healthy animals (64855).
- BALL, C. R., Department of Agriculture, Washington, D. C.: 59 willows from Indiana (64669).
- BARBER, AMHERST W., Washington, D. C.: Head skin, antlers and lower jaws of a deer, *Odocoileus*, collected on October 17 1899, at Rio Blanco County, Colorado, by V. S. Barber (63997); (through Mr. H. S. Barber) 2 carnelian beads found on the north shore of Lake Okeechobee, near the mouth of the Kissimmee River, Florida (64298).
- BARBER, H. S., Department of Agriculture, Washington, D. C.: 6 Diptera (63909); 25 isopods and a small fish from Florida (64315).
(See also under Amherst W. Barber.)
- BARBER, MANLY D., Knoxville, Tenn.: 81 mollusks, 12 species, from Tennessee and Illinois (64319).
- BARLOW, Miss CATHERINE BRITTIN (See under Daughters of the American Revolution, National Society of).
- BARNES, Dr. WILLIAM, Decatur, Ill.: 2000 determined North American Microlepidoptera including 200 co-types and many species hitherto not, or insufficiently, represented in the Museum collections (64446); 150 North American butterflies (65096).
- BARRETT, C. H. M., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: 10 mollusks representing 5 species from St. Marks, Florida (64637).
- BARRETT, H., Launceston, Tasmania: 85 prehistoric stone implements from southern Tasmania (65063, exchange).
- BARRINGER, D. M., Philadelphia, Pa.: Samples of tin ore from Bolivia (63847).
- BARTLETT, Prof. H. H., Department of Botany, University of Michigan, Ann Arbor, Mich.: 246 plants from Sumatra, received through the Bureau of Science, Manila, P. I. (64131).
- BARTSCH, Dr. PAUL, U. S. National Museum: Salamander, *Desmognathus fuscus*, from the east side of Hoosac Mountains, Massachusetts (64063).
- BASTIN, Mrs. E. S., Washington, D. C.: 40 plants from Chile (64378).

- BAXTER, Miss MARTHA WHEELER**, New York City (through the Government Loan Organization, New York City): Portrait in oil, by the donor, of a Naval Officer (65151).
- BEAL, REYNOLDS**, Newburg, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "Sinking of the U. S. S. Jacob Jones" (65147).
- BEARD, Capt. ROBERT L.**, Utilities Officer, Camp Lee, Va.: "Congo eel," *Amphiuma means*, from Virginia (63838).
- BECKER, Mrs. GEORGE F.**, Washington, D. C.: Attu basket of very fine weave, and a bamboo cane with carvings of rats (64300); case and box containing unfinished papers and scientific correspondence of Dr. Becker; also a collection of 6 ethnological objects, a Bayer rug, a bas-relief and 8 paintings (16 specimens) (64503, loan).
- BEER, EMIL.** (See under A. K. Wyatt.)
- BENEDICT, Dr. J. E.**, U. S. National Museum: Skin and skull of a mouse, *Pitymys pinetorum* (64578).
- BENEDICT, J. E., jr.**, Woodside, Md.: Specimen of bot larva; 283 Odonata, collected by the donor in August and September, 1917, near Cole Point, Virginia, and Harper's Ferry, West Virginia; mourning dove, *Zenaidura macroura carolinensis*; 3 larvae of *Donacia* from Acokeek Creek, Virginia (63910; 63923; 64843; 65057).
- BENJAMIN, Mrs. CAROLYN GILBERT** (See under Colonial Dames of America, National Society of).
- BENJAMIN, Dr. MARCUS**, U. S. National Museum: A book-plate—Washington Memorial Library; collection of 7 photo-mechanical relief prints in 4 colors, the work of the American Colortype Company, New York City; leather-bound volume (1749) from the library of Millard Fillmore 64293; 64429; 64947).
- BENNETT, RALPH W.**, Washington, D. C.: Fence swift from Cupid Bower Island, near Great Falls, Virginia (63888).
- BEQUAERT, Dr. J.**, American Museum of Natural History, New York City: 8 African flies, 8 species, including 4 bot flies of African mammals (63949, exchange).
- BERGER, ALWIN**, Connstatt, Stuttgart, Germany: Plant, *Epiphyllum* (64808, exchange).
- BERMUDA, GOVERNMENT OF** (through Secretary of State for the Colonies, London, England, and the Department of State, Washington, D. C.): 12 one-penny war tax stamps issued by the British Colony of Bermuda during the World War, 1914-1918 (65105).
- BERRY, CARROLL T.**, New York City (through the Government Loan Organization, New York City): A painting by the donor entitled "Battle of Seichprey" (65152).
- BERRY, Dr. S. S.**, Redlands, Calif.: 2 paratypes of mollusks, *Vertigo modesta microphasma*, collected in the vicinity of Bluff Lake, San Bernardino Mountains, California (64383).
- BETHEL, ELLSWORTH**, Denver, Col.: 12 plants from Colorado, New Mexico, and Wyoming (64085, 64158); 5 specimens of rusts from New Mexico (64149).
- BEZZI, Prof. M.**, Turin, Italy: 2 species of flies belonging to the family Anthomyiidae (64708, exchange).
- BIELINSKI, R. C. G.**, Delanco, N. J.: Mounted specimen of yellow rail, *Coturnicops noveboracensis*, from New Jersey (64892).
- BISHOPP, F. C.**, Dallas, Tex.: 5 vials of bot-fly larvae (64881).
- BLACKISTON, A. H.**, Fort Worth, Tex.: Archeological objects from the Valley of Mexico (Aztecapasalco, near Mexico City), and a mastodon tooth, collected by Mr. Blackiston (80 specimens) (64533, loan).
- BLAINEY, EDMUND.** (See under T. Dale Stewart.)

- BLAKE, S. F., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 1324 plants, chiefly from New England and California (63845); (through Bureau of Entomology) 238 miscellaneous insects from Central America (64793); 2 birds eggs, *Tinamus* and *Ortalis*, from Guatemala (64900); 2 plants (64903).
- BLANCHARD, Dr. FRANK N., Museum of Zoology, University of Michigan, Ann Arbor, Mich.: 2 Butler's garter snakes from Ann Arbor (64155); 12 isopods, *Porcellio rathkei*, from under loose boards, Huron River, Ann Arbor, Mich., November 9, 1919, collected by the donor (64589).
- BLANCHARD, R. W., Washington, D. C.: Water snake from Great Falls, Virginia (63887).
- BLASHFIELD, EDWIN H., New York City: An oil painting by the donor entitled "The Spirit of the Past Will Carry the Future to Victory" (64347).
- BLEAKLY, LOUIS H., Verplanck, N. Y.: 2 garden slugs, *Limax maximus*, collected by the donor at Verplanck (64224).
- BLISS, Rev. EDWIN M., Washington, D. C.: 13 specimens of ethnologica from Africa, Korea, and other localities, including Oriental Bibles, grammars, etc., a section of a tree from Korea, and an elephant's tooth (63881).
- BLUMENSCHIEIN, E. L., Brooklyn, N. Y. (through the Government Loan Organization, New York City): Portrait in oil, by the donor, of Lieut. Charles H. Lembke, 91st Division, and "The Long Range Gun in Paris" (65150).
- BOARDMAN, Miss MABEL T., Washington, D. C. (through Mrs. Julian-James): A blue satin fan painted with strawberries, signed F. de Rose (64690, loan).
- BOGER, Mrs. MARTHA ISABEL, Portsmouth, N. H. (through Dr. W. A. Dewey, Ann Arbor, Mich.): A copy of Allen's "Materia Medica of the Nosodes" (64307).
- BOGOTA, COLOMBIA, INSTITUTO DE LA SALLE: 11 bird skins from Colombia; 3 monkey skins and skulls (63971, exchange); 22 plants from Colombia (63992); (through Brother Ariste-Joseph): 157 plants from Colombia (64206, 64556).
- BOLIVIAN DELEGATES TO THE SECOND PAN AMERICAN FINANCIAL CONFERENCE (through Sr. Don Ignacio Calderon, Bolivian Legation, Washington, D. C.): A unique sheet of copper extracted from the Viscachani mine, District of Corocoro, Department of La Paz, Bolivia (64631).
- BOLLMAN, HOWELL C., U. S. Army, Laboratory No. 1, A. P. O., 731, A. E. F.: 36 plants from the vicinity of Neufchateau, Vosges, France (63801).
- BONAPARTE, Prince ROLAND, Paris, France (through H. Heuvrard): 4 photographs and a fragment of fern, *Dryopteris ichtiosma*, from Ecuador (63828, exchange).
- BONNE, Dr. C., Paramaribo, Dutch Guiana: 40 horsellies and allied insects, and a rat from Dutch Guiana 64078, 64252).
- BOONE, Miss PEARL, U. S. National Museum: Plant from Maryland (64153).
- BOSTON SOCIETY OF NATURAL HISTORY, Boston, Mass.: A fragment of the Port Orford, Oregon, meteorite (64916, exchange).
- BOWEN, C. F., New York City (through Dr. F. H. Knowlton): A collection of fossil leaves from Venezuela (63946).
- BRAENDLE, FRED J., Washington, D. C.: Sponge, *Microciona prolifera*, and a bryozoan, *Bugula turrita*, both collected at May Point, Delaware Bay (64011).
- BRANDEGEE, T. S., Department of Botany, University of California, Berkeley, Calif.: Fern from Mexico (64253).
- BRAUNTON, ERNEST, Los Angeles, Calif.: 2 plants, *Dudleya brauntonii*, from California (64914).

BRECKENRIDGE, Gen. JOSEPH C., U. S. Army, Washington, D. C. (through Miss Lucy H. Breckenridge): Ethnological material collected by the donor in the Philippine Islands and elsewhere (40 specimens) (64945).

BRENNAN, Private T. A., U. S. M. C., Chicago, Ill. (through Dr. William L. Abbott): Broken earthenware pot with cover from Santo Domingo (64334).

BRIMLEY, C. S. (See under North Carolina, State Department of Agriculture, Division of Entomology, Raleigh, N. C.)

BRIMLEY, Dr. H. H., Curator, State Museum, Raleigh, N. C. Fragments of an Indian skull picked up on a sand shoal near Beaufort, North Carolina, in August, 1918 (63862).

BRISBANE, QUEENSLAND, AUSTRALIA, QUEENSLAND MUSEUM through Mr. Heber A. Longman, Director): 4 larvae of sawflies, *Perga dorsalis*, and 32 larvae of *Perga*, sp. (64684, exchange).

BRITISH GOVERNMENT (through Department of State, Washington, D. C.): Postage stamps of Australia, Canada, New Zealand, Rhodesia, and Samoa, issued during the World War, 1914-1918 (47 specimens) (63837); Australian postage stamps surcharged for use in Northwest Pacific Islands, formerly German New Guinea (64701, exchange); silver replica of the peace souvenir medal issued to the children of Australia by the Government of that Commonwealth in connection with the Peace Celebration, July, 1919 (64481); postage stamps of Bahamas, Barbados, British Guiana, Ceylon, East Africa and Uganda, Fiji Islands, Gibraltar, Gold Coast, Grenada, India, Nyassaland, and Togo, issued 1917-1919 (189 specimens) (64003); 2 specimens each of the halfpenny and threepence postage stamps issued by the British Colony of Malta during the World War, 1914-1918

BRITISH GOVERNMENT—Contd.

(64109); 2 one-penny stamps of St. Vincent issued during the World War, 1914-1918 (64880).

(See also under Bermuda, British Honduras, British North Borneo, and Dominica.)

BRITISH HONDURAS, GOVERNMENT OF, Belize, British Honduras (through Colonial Secretary's Office): Postage stamps issued during the World War, 1914-1918, by the Government of British Honduras (5 specimens) (64463).

BRITISH NORTH BORNEO, GOVERNMENT OF (through the Governor, Jesselton, N. B., and the Principal Secretary of State for the Colonies, London, England: Red Cross postage stamps of North Borneo issued 1916-1919, and photographs and posters relating to Red Cross fairs, Jesselton, N. B., 1916-1918 (70 specimens) (63959).

BRITISH MUSEUM (NATURAL HISTORY) (See under London, England).

BRITTON, Dr. N. L. (See under New York Botanical Garden).

BRITTON, Dr. W. E., State Entomologist, New Haven, Conn.: 2 larvae of a sawfly, *Itycorsia zappei* (64501); 27 sawflies (64598).

BROADWELL, W. H., Newark, N. J.: 3 crystals of minerals, molybdenite, apophyllite, and spinel (64528, exchange).

BRODE, H. S., Walla Walla, Wash.: Specimen of *Cuterebra tenebrosa* (64058).

BROOKE, Major General JOHN R., U. S. Army (retired), Washington, D. C.: Presentation and service swords, pictures, badges of patriotic societies, documents and miscellaneous historical relics, owned by the donor (63843); badges of patriotic societies, commemorative medals, gold watch chain, and wooden cane, owned by the donor (38 specimens) (64030).

- BROOKLYN MUSEUM, THE**, Brooklyn, N. Y. (through Mr. Robert Cushman Murphy): 21 crustaceans representing 10 species from Peru, including the type of 1 new species (64879); 10 crabs, megalops stage, from Independencia Bay, Peru (64901).
- BROOKS**, Major ALFRED H., U. S. Geological Survey, Washington, D. C.: Geological map of the Montsec region, France, prepared under the direction of the donor, Engineer Corps, A. E. F. (64233).
- BROWN**, EDWARD J., Los Angeles, Calif.: 102 bird skins from southern California, and 3 skeletons (64391).
- BROWN**, Prof. H. P. (See under New York State College of Forestry.)
- BROWN**, Mrs. JOSEPH STANLEY (through Mrs. Julian-James): Lace flounce (Brussels point de Gaze) which was originally on the dress worn by Mrs. Lucretia R. Garfield at the inaugural ball on the occasion of the inauguration of her husband, President James A. Garfield in 1881 (64491, loan).
- BROWN**, W. L., U. S. National Museum: Toad-fish, *Opsanus tau*, collected in the Patuxent River at Benedict, Maryland, August 1, 1919 (63929); bat, *Nycteris borealis* (alcoholic) (63998); skins and skulls of 2 squirrels, *Sciurus carolinensis* (64415).
- BROWN**, W. T. WATKIN, Bown's Road, Kogorah, Sydney, N. S. W., Australia: Model of a meteorite and a specimen of molybdenite (64531).
- BROWNE**, GEORGE ELMER, Provincetown, Mass. (through the Government Loan Organization, New York City): 2 paintings entitled "The Sinking of Unarmed Fishermen off Cape Cod" and "The Attack on Zeebrugge, April 22, 1918" (65148).
- BROWNE**, MATILDA (Mrs. Frederick Van Wyck), New York City (through the Government Loan Organization, New York City): An oil painting by the donor entitled "Belgian Refugees" (65159).
- BROWNING**, Mrs. R. BARRETT, Washington, D. C. (through Mrs. Julian-James): Small parasol of white silk with cover of white tatting and folding handle of carved ivory (64962).
- BRUNSWICK-BALKE-COLLENDER COMPANY, THE**, Chicago, Ill.: Finished fancy billiard cue "No. 36 State Championship" made up of eight different woods and mother-of-pearl inlay (64518).
- BRYANT**, Mrs. LIVIA HATCH (through Mr. Arthur Cornforth, Colorado Springs, Col.): Silver-headed cane made from the flagstaff of Fort Sumter and presented to Mr. F. H. Hatch by Gen. P. T. Beauregard, Confederate States Army, in 1861 (64195, bequest).
- BUCKSTAFF**, R. N., Oshkosh, Wis.: A 51-gram specimen of the Colby, Wisconsin, meteoric stone (64205, exchange).
- BUERHAUS**, H. A., Zanesville, Ohio (through Prof. W. C. Mills, Columbus, Ohio): Human skull recently excavated from a deposit of river gravel at Gilbert Station, six miles from Zanesville, Ohio (63919).
- BULLBROOK**, J. A., Care, Royal Bank of Canada, Port of Spain, Trinidad, British West Indies (through Dr. T. Wayland Vaughan): 54 lots of Tertiary fossils from Trinidad, British West Indies (64959).
- BURGIN**, Dr. ISAM F., Delta, Cal.: Skull of a harbor porpoise, *Phocaena*, from Cooks Inlet, Kachamak Bay, Alaska (64984).
- BURK**, MIKE, Los Angeles, Calif. (through Department of Commerce, Bureau of Fisheries): A sample of oolitic sand from California (63826).
- BURT**, HIRAM AUSTIN, Care, Mrs. Howard Corning, Bangor, Me.: A typographer, replica of the original machine invented by William Austin Burt, grandfather of the donor, patented July 23, 1829 (65051).
- BURTCH**, VERNER, Branchport, N. Y.: Flying squirrel, *Glaucomys* (64400).

- BUSCK, August, U. S. Department of Agriculture, Washington, D. C.: Red salamander, *Eurycea rubra rubra* (64461).
- BUSH-BROWN, H. K., Washington, D. C.: Handmade quilt made of wool grown on the estate and carded, spun, and woven in the home of, Hon. James Udall, of Hartford, Vermont, grandfather of the donor (64861).
- CAIN, W. W., Fowler, Kans.: An arachnid, *Eremobates formicaria?* (64899).
- CALDERON, Sr. Don IGNACIO (See under Bolivian Delegates to the Second Pan American Financial Conference).
- CALDERON, Dr. SALVADOR, San Salvador, Central America: 55 Hymenoptera; 36 butterflies and 4 bees from San Salvador (63930, 64359, 64540).
- CALIFORNIA ACADEMY OF SCIENCES, San Francisco, Calif. (through Miss Alice Eastwood): 4 ferns from Hawaii; 533 plants from the western United States; 2 plants, *Isoetes*, from California (64337, 64416, 64854). Exchange.
- CALIFORNIA POLYTECHNIC SCHOOL, San Luis Obispo, Calif. (through Mr. J. T. Saunders, Instructor): Silk-worm moth, *Telca polyphemus* (64887).
- CALIFORNIA REDWOOD ASSOCIATION, San Francisco, Calif.: 20 photographs showing redwood timber operations (64960).
- CALIFORNIA, STATE OF, DEPARTMENT OF AGRICULTURE, San Francisco, Calif. (through Mr. L. A. Whitney): 2 male flies, *Pegomyia* n. sp. (64804).
- CALLAN, Mrs. J. A., Nyland, Ala.: Snapping turtle (64260).
- CAMPBELL, BLENDON R., New York City (through the Government Loan Organization, New York City): Portrait by the donor of Brigadier General Cornelius Vanderbilt (65169).
- CANADA, DEPARTMENT OF AGRICULTURE OF, Ottawa (through Dr. C. Gordon Hewitt, Dominion Entomologist): 4 cotypes of an Arctic-Canadian fly, *Phormia caerulea* (63987).
- CANADA, DOMINION COMMISSION OF FISHERIES, DEPARTMENT OF NAVAL SERVICE, Ottawa: 120 amphipods from the Canadian Arctic Expedition (64791).
- CANTON CHRISTIAN COLLEGE, Canton, China: 494 Chinese plants (64816).
- CARL SCHÖEN SILK CORPORATION, New York City: 3 samples of novelty fabrics of silk and artificial silk (64262).
- CARLETON, CLIFFORD, Elizabethtown, N. Y. (through the Government Loan Organization, New York City): A painting by the donor entitled "The 77th Division Leaves New York" (65158).
- CARNEGIE INSTITUTION OF WASHINGTON, D. C.: Archeological material and skeletal remains gathered by Gerard Fowke from Goat Bluff Cave, on the left bank of the Gasconade River, four miles west of Arlington, Missouri, during the summer of 1904 (64692); cactus, *Mammillaria*, from Texas, collected by Prof. A. Ruth (64918).
- CARNEGIE MUSEUM, Pittsburgh, Pa.: A skeleton of an extinct camel, *Stenomylus hitchcocki* (64414).
- CARNEY, J. E. jr., Morro do Pilar, Minas Geraes, Brazil (through Mr. E. C. Harder, U. S. Geological Survey): A specimen containing bismuth minerals and some vanadium (64263).
- CARPENTER, C. N., Placerville, Colo. (through Mr. F. L. Hess): Specimen of vanadium sandstone (64088).
- CARR, WILBUR J., Director of the Consular Service, Department of State, Washington, D. C.: A bow and 10 poisoned arrows from Colombia, South America (65062).
- CARRERA, Dr. EMILIO, New York City: Tree fern, *Alsophila myosuroides*, from Cuba (64095).

- CARY, WILLIAM DE LA MONTAGNE, New York City (through the Government Loan Organization, New York City): An oil painting by the donor entitled "The Warrior's Return" (65171).
- CASBARIAN, B. G., Washington, D. C.: Antique Cabestan prayer rug (65014, loan).
- CASSINO, S. E., Salem, Mass.: 590 Lepidoptera, Syntomidae, and Arctiidae, from South America (64676, exchange).
- CASTELLANOS, ALBERTO, Buenos Aires, Argentina: 5 cacti from Argentina (64042).
- CAUDELL, A. N., U. S. Department of Agriculture, Washington, D. C.: Frog from Kansas, and 30 insects of various orders from Oklahoma and Kansas (64105); miniature paintings of two saints by Mexican Indians of 300 years ago (for shrines) (64247).
- (See also under Knab, Estate of Frederick.)
- CELITE PRODUCTS COMPANY, Los Angeles, Calif.: Greater part of the head and 2 vertebrae of a whale, and 2 slabs of diatomaceous earth carrying numerous imprints of fish, from Lompoc, California, collected by W. S. Kew, of the U. S. Geological Survey (64219).
- CHACE, E. P., Los Angeles, Calif.: 63 crustaceans, 1 pseudoscorpion, 2 annelids, 1 sipunculid, 1 platyhelminth, all from California (64364).
- CHAMBERLAIN, EDWARD B., New York City: 9 mosses from Java (64207, exchange).
- CHAMBERLAIN FUND, FRANCES LEA, Smithsonian Institution: A bracelet of amber (64796).
- CHAMBERLAIN, ORVILLE T., Elkhart, Ind.: Photograph of the donor as a recipient of the Army Medal of Honor for distinguished gallantry at Chickamauga, Georgia, September 20, 1863 (63965).
- CHAMBERS, BENJAMIN L., U. S. National Museum: Yellow-bellied sapsucker, *Sphyrapicus varius*, from Washington, D. C. (64162).
- CHAMPION, H. G., Almora, N. P., India: 27 rove-beetles, representing 8 species, of the genus *Dianous* (64090).
- CHAPIN, E. A., Bureau of Animal Industry, U. S. Department of Agriculture, Washington, D. C.: 3 beetles, paratypes of *Callimerus lateralis*, *C. luzonicus*, and *C. flavus*, belonging to the family Cleridae, from the Philippine Islands (65081).
- CHAPMAN, CHARLES S., Leonia, N. J. (through the Government Loan Organization, New York City): A painting by the donor entitled "Allies" (65157).
- CHAPMAN, ROBERT HOLLISTER (through Mrs. Robert Hollister Chapman, in memory of the donor): Ethnological, archeological, and American pioneer specimens from the United States and British Columbia, collected by the late Robert Hollister Chapman (64643); a flint lock rifle and a stone button mold of the period of the Revolution (64719); 7 ethnological objects (64946).
- CHEONG, A. J., Tunmatumari, British Guiana: 31 plants from British Guiana (64086).
- CHUBB, E. C. (See under Durban Museum).
- CINCINNATI MUSEUM ASSOCIATION. (See under Vita Habig.)
- CLARK, AUSTIN H., U. S. National Museum: 375 plants from eastern Massachusetts; song sparrow, *Melospiza melodia*; bat (alcoholic) (64138, 64332, 64579).
- CLARK, B. PRESTON, Boston, Mass.: Snake from Rosario, Sinaloa, Mexico (63915); 6,715 Lepidoptera (1,000 moths and 5,715 butterflies) from the Hawaiian Islands, Arizona and South America (65100).
- CLARK, Miss EMILY A., Sudan Interior Mission, Minna, via Northern Provinces, Nigeria, Africa: 97 mollusks representing 18 species collected on the beach at Lagos, Southern Nigeria (64413).

- CLAUDE, JOSEPH, Brother. (See under Instituto de la Salle, Correo Nüñoa, Chile.)
- CLEMENS, Mrs. MARY STRONG, Greenville, Calif.: 5 plants from California (65001).
- CLEMENTS, Dr. J. MORGAN, New York City: A specimen of contact rock containing "lievrite" from Korea (64302); specimen of asbestos from China (64472); (through Department of Commerce) 12 specimens of minerals from China (64606); specimen of asbestos from the Province of Kwangsi, South China (65079).
- CLOKEY, IRA W., Denver, Col.: 285 plants from Colorado (64396, 64651).
- COALE, Mrs. ISAAC. (See under Miss Bertha Cohen.)
- COCKERELL, Prof. T. D. A., Boulder, Col.: 5 named bees, representing 5 species (63893); 24 Philippine wasps (64077); 15 plants from Colorado (64183); 43 wasps from the Philippine Islands, 116 wasps from Colorado and 12 from Argentina; also 5 sawflies from Colorado, and 7 bees (64680); collection of approximately 250 (some unmounted) insects, including unnamed Hymenoptera, Diptera, Orthoptera, Hemiptera, Lepidoptera, and Coleoptera, together with 7 microscopic slides of genitalia of bees (64734); approximately 316 miscellaneous insects, and 123 species of named bees, of which 106 are represented by holotypes (64920).
- (See also under Colorado, University of.)
- COFFMAN, HERBERT, Harrisonburg, Va.: The left side of lower jaw of a domestic boar, *Sus*, with the lower tusk grown in circle through the jaw (64019).
- COHEN, Miss BERTHA, Baltimore, Md.: Mrs. A. B. JOHNSON, Boston, Mass.: Mrs. D. GRISBY LONG, Liberty Mills, Virginia, and Mrs. ISAAC COALE, Baltimore, Md.: The 2 copies of the New Testament which Thomas Jefferson used for his composition of the Life of Jesus known as the "Jefferson Bible" (65064).
- COLE, FRANK R., Stanford University, Calif.: 4 flies, including paratypes of 2 species (64935).
- COLE, Rev. W. B., Hsinghua, China (through the American Consul at Foochow, and the Consul-General at Shanghai, China): 1 set of 7 original photographs illustrating cultivation of the opium poppy and 1 photographic enlargement of each (65086).
- COLEGIO SAN PEDRO APOSTOL, Cartagena, Colombia (through Bro. Heriberto): 239 plants from Colombia (64032, 64555, 65020); 76 plants from Colombia (64333, exchange).
- COLES, Dr. RUSSELL J., Danville, Va.: A section of the upper and lower jaw of a shark, *Galeocercus tigrinus*, and samples of upper and lower jaw of a black-tip or sharp-nose shark, *Scoliodon terraenovae* (64008).
- COLLINS-GARNER CONGO EXPEDITION, Fernan Vaz, French Congo, Africa: 695 mammals, 673 birds, 4 nests, 2 eggs, 881 marine invertebrates, 16 fishes, 25 insects, 91 reptiles, a torch of resin and palm leaf; and a small collection of plants collected by C. R. Aschmeier in French Congo, Africa, for the National Museum (64018).
- COLONIAL DAMES OF AMERICA, NATIONAL SOCIETY OF, Washington, D. C. (through Mrs. Carolyn Gilbert Benjamin): Good cheer bag of the type of 4500 others sent at Christmas 1917 and 1918, from the Theodorus Bailey Myers Mason House, Washington, D. C., and its 248 chapters throughout the country to soldiers, sailors and marines serving the United States overseas in the Great War (63960); a military dress sword of the latter part of the 18th century (64723); collection of uniforms of the type worn by American women members of war organizations during the World War, 1914-1918 (65054); autograph letter of George Washington, dated Philadelphia, June 4, 1776 (65058). Loan.

COLORADO STATE MUSEUM, Denver, Col. (through Miss Rena P. Duthie): Plant from Colorado (64966).

COLORADO, UNIVERSITY OF, Boulder, Col. (through Dr. Francis Ramaley) 50 plants (64830, exchange); (through Prof. T. D. A. Cockerell) 39 plants (65082).

COMER, J. D., Marion, Va. (through Dr. E. O. Ulrich) An exhibition specimen of the fossil shell, *Mac-lurca* in limestone (64104).

COMINS, EBEN F., Boston, Mass.: Set of 4 portraits of American soldiers of the Great War by Eben F. Comins, entitled "Just Home from Over There," "Reconstruction," "Wounded Soldier with Crutches," and "Colored Hero" (64225, loan).

COMMERCE, DEPARTMENT OF:

Bureau of Fisheries: Live turtles from Banks Mill Pond, Berrien County, Georgia (63830); 427 cephalopod mollusks, including 20 types of new species, collected by the steamer *Albatross* in the northwestern Pacific in 1906, and reported on by Mr. Madoka Sasaki, in the Proceedings of the U. S. National Museum (63906); skin and skull of a coon, *Procyon*, collected on Stock Island, Florida (63999); a collection of Philippine planarians with a set of 10 colored drawings with descriptive notes, secured by the *Albatross* Philippine Expedition 1907 (64054); 3 crayfishes collected by Dr. P. H. Mitchell in the Palmers River, near Warren, Rhode Island (64246); 190 marine algae from the Pacific coast of North America (64311); crayfish, *Cambarus blandingii*, collected in the Palmers River, Rhode Island, by Mr. H. W. Tinkham (64314); crab, *Calappa flammea*, from Beaufort, North Carolina (64317); 10 decapod crustaceans representing 2 species, including 1 type, from Beaufort, North

COMMERCE, DEPARTMENT OF— Continued.

Carolina (64897); 240 Philippine annelids (64422); 4 barnacles, *Octolasmis hocki*, attached to the mouthparts of *Panulirus argus*, collected at Key West, Florida, by Mr. D. R. Crawford (64508); lobster, *Panulirus argus*, post-larval stage, also collected at Key West by Mr. Crawford (64532); 3 plants (kelps) from the Pacific coast (64582); a collection of the Medusae and Siphonophores, including type specimens, collected by the steamer *Bache* and reported on by Mr. H. B. Bigelow; also a small collection of pteropod mollusks collected by the *Grampus*, 1916, and a few other miscellaneous invertebrates collected by the *Grampus* (64620); about 300 marine invertebrates and 25 fishes from La Jolla, California, collected by Mr. Waldo Schmitt (64640); mammals, reptiles, fishes, and invertebrates (64673); turtle-shell and skeleton taken at Woods Hole, Massachusetts in 1919 (64693); a collection of fishes obtained by the steamer *Albatross* between June 11, 1914, and September 12, 1916, along the west coast of North America (64744); a collection of miscellaneous invertebrates taken from the bottom samples collected by the steamer *Albatross* off the southeast coast of the United States during the fall of 1919 (64746); a small collection of miscellaneous marine invertebrates collected by Dr. H. B. Bigelow on cruises of the Fisheries schooner *Grampus*, 1913-1916 (64798); thresher shark and hammerhead shark, collected by Mr. Vinal N. Edwards, Woods Hole, Mass. (64191); 30 fishes collected by Prof. N. Gist Gee at Soochow, China (64941).

(See also under Mike Burk, and Dr. J. Morgan Clements.)

- COMMERCIAL MUSEUM, THE, Philadelphia, Pa.: 8 specimens of Macayo fruits, *Andira excelsa*, and 2 samples of candelilla wax (64789); 18 photographs showing sources of commercial products (65072); apparatus used by Eadweard Muybridge in the photographing of motion in living animals (15 specimens) (65115).
- CONSERVATOIRE ET JARDIN BOTANIQUE, Geneva, Switzerland: A plant, *Rhipsalis* (64806, exchange).
- CONTRERAS, Prof. FRANCISCO and CARLOS CUESTA TERRÓN, Chapala, Jalisco, Mexico: A collection of reptiles, fishes, worms and crustaceans (64707).
- CONZATTI, Prof. C., Oaxaca, Mexico: 169 plants from Mexico (64005, 64678); 39 plants (64826).
- COOKE, Dr. C. WYTHE (See under Sidney Paige, and F. L. Wilde).
- COOPER, COLIN CAMPBELL, New York City (through the Government Loan Organization, New York City): Oil painting by the donor entitled "Forward (The Crusaders)" (65156).
- COPENHAGEN, DENMARK, UNIVERSITETETS BOTANISKE MUSEUM (through Dr. Ove Paulsen, Inspector): 908 plants, chiefly from Mexico and Central America (64494); 15 plants, *Polystichum*, from Europe (64870). Exchange.
- COPENHAGEN, DENMARK, ZOOLOGICAL MUSEUM: Skin and skull of a water rat, *Arvicola amphibius*, and an alcoholic specimen of the same species (64569, exchange).
- CORN, Rev. N. P. M., Marshall, N. C. (through Dr. W. T. Schaller): Crystals of monazite from North Carolina (63874).
- CORNFORTH, ARTHUR (See under Mrs. Livia Hatch Bryant).
- COTTLE, Mrs. ALBERT, Washington, D. C. (through Mrs. Julian-James): Lady's tortoise-shell back-comb (64049, loan).
- COX, Dr. PHILIP, University of New Brunswick, Fredericton, New Brunswick, Canada: 8 fishes collected in Canada during the summer of 1919 (64505, exchange).
- CRANE LITHOGRAPH COMPANY, THE, Cleveland, Ohio. Prints made by Sephiograph Process (6 specimens); portrait of Capt. Georges Guynemer, after the painting by Lieut. Henry Farré (64024).
- CUMINGS, Prof. E. R., University of Indiana, Bloomington, Ind.: An exhibition specimen of fossiliferous limestone and a polished slab of the same (64194).
- CURRAN, Mrs. ELMA H., Ilheos, Bahia, Brazil: 51 marine mollusks, 16 species from the beach at Ilheos (64595).
- CURRELL, JOHN W., Washington, D. C.: 3 notes issued by the Himrod Furnace Company in 1872 (64852).
- CURTISS AEROPLANE AND MOTOR CORPORATION, New York City (through Mr. F. L. Faure, Manager, Department of Education and Sales Promotion): Bronze medal issued by Mr. Glenn H. Curtiss in commemoration of the first trans-Atlantic flight, made by the NC-4, in 1919 (64222).
- CUSHING, Mrs. FRANK HAMILTON, Care, F. C. Curtis, Albion, N. Y.: Portrait in oil of Frank Hamilton Cushing, by Hovenden, and 193 lantern slides of ethnological subjects (64768).
- CUTHBERT, Dr. E. P., Titusville, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 9 volumes of the Transactions of the American Institute of Homeopathy for the years 1900-1904 (64764).
- CUTLER, Col. HARRY (See under Jewish Welfare Board, National Headquarters, New York City).
- DALL, Dr. WILLIAM H., U. S. Geological Survey, Washington, D. C.: Collection of plaster casts; proof impressions of 104 antique engraved gems in the Vatican Cabinet in Rome, Italy (64724).
- (See also under Mrs. Ellison Van Loon Snyder.)

- DANFORTH, Mrs. CHARLOTTE ELLIS, Washington, D. C.: 10 ethnological specimens and an Indian stone pipe (63949, loan).
- DAOUD, Mrs. RINJUS, Washington, D. C.: Marble mortar and wooden pestle from Syria (64769).
- DAUGHTERS OF THE AMERICAN REVOLUTION, NATIONAL SOCIETY OF (through Miss Catherine Brittin Barlow, Curator General of the Museum): Chair owned by General Washington at Mount Vernon, and chair owned by Commodore Joshua Carney, Continental Navy (64564, loan).
- DAVIDSON, Dr. A., Los Angeles, Calif.: 16 plants from California (63865, 64184, 64394, 64612, 64929); a plant, *Gilia latifolia* (65059).
- DAVIS, Miss EDNA B., Winslow, Ariz.: 2 small coiled ware jars from Rio Puerco region, Arizona, collected by the donor (64389).
- DAVIS, Rev. JOHN, Hannibal, Mo.: 26 plants from South Carolina (64342); 32 plants (64695).
- DAVIS, T. E. R., Bulls Gap, Tenn.: Shrub, *Pyrularia pubera*, a member of the family Santalaceae (64136).
- DEAM, CHARLES C., Bluffton, Ind.: 175 plants, chiefly from Indiana (64381, 65013).
- DECHKOVITCH, BRANKO, Paris, France (through the President of the United States, and the Department of State): Model in plaster of a sculptural work by the donor entitled "The Victory of Liberty" (64428).
- DETWILER, FREDERICK K., Noank, Conn. (through the Government Loan Organization, New York City): 2 paintings by the donor entitled "The Launching of the Balsto" and "A Frame Up in the Wooden Ship Yard" (64348).
- DEVEREUX, Mrs. J. RYAN, Chevy Chase, Md.: Collection of musical instruments illustrating development (64657).
- DEWEY, L. H. (See under Agriculture, Department of, Bureau of Plant Industry).
- DEWEY, Dr. W. A. (See under American Institute of Homeopathy, Chicago, Illinois, Dr. W. Franklin Baker, Mrs. Martha Isabel Boger, Dr. E. P. Cuthbert, Dr. Joseph C. Guernsey, Dr. Dudley A. Williams).
- DIAMOND STATE FIBRE COMPANY, Bridgeport, Pa.: Sample board showing diverse articles made from cotton cellulose (65108).
- DICKINSON, SIDNEY E., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The First Raid on the Americans, Nov. 3, 1917" (65155).
- DIEDRICH, B. T., Congress Heights, D. C.: Mounted skin and skull of a field mouse, *Zapus* (64070).
- DIRECCION DE ESTUDIOS BIOLOGICOS. (See under Mexico, Mexico.)
- DOBSON, Dr. W. H., Surgeon in Charge, Foreman Memorial Hospital, Yeung Kong, China: Complete outfit of a Chinese carpenter (28 specimens) (64124).
- DODGE AND OLCOTT COMPANY, New York City: 29 specimens of essential oils and 21 specimens of vegetable drugs (64821). (See also under Charles A. Myers, Jr.)
- DODGE, FLETCHER D. (See under Toy Manufacturers of the United States of America Inc.)
- DODGE, PICKERING, Washington, D. C.: A collection of samples of marble, chiefly Italian (64998).
- DODSON, J. D., Laredo, Tex.: Silver pipe bowl used by President Jackson (63879).
- DOLINSKY, NATHAN, Brooklyn, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "The Battalion of Death, Russian Army" (65154).
- DOMINICA, GOVERNMENT OF (through the Administrator, Government House, Dominica, W. I., and the Secretary of State for the Colonies, London, England): War tax stamps issued by the British colony, Dominica, during the European War,

DOMINICA, GOVERNMENT OF—
Continued.

1914-1918, namely, half-penny, one and one-half penny, and three pence, in blocks of four each (12 specimens) (64103).

DOMINICAN REPUBLIC. MILITARY GOVERNMENT OF (through the U. S. Geological Survey): Geologic collections made in the Dominican Republic during April, May, and June, 1919 (65073).

DONLY, Mrs. EVA BROOK, Rahway, N. J. (through the Government Loan Organization, New York City): Painting by the donor entitled "Arrival at Baltimore of U-Boat Deutschland" (65153).

DORSETT, J. H. M., Grayton, Md.: Albino kingbird, *Tyrannus tyrannus*, from Maryland (64022).

DOUGHTY, GEORGE D., Post, Tex.: A small collection of fragmentary vertebrate remains from the Triassic of Texas (64725).

DOWNES, JOHN I. H., New Haven, Conn.: Painting by the donor entitled "German Cruiser Embden Destroyed by the Australian Cruiser Sydney" (65162).

DRAKE PROCESS INCORPORATED, Cleveland, Ohio: 11 paper milk bottles and 2 containers for drug sundries made from wood pulp; 4 samples of wood pulp and 24 articles made therefrom (64958, 64838).

DUNNE, Dr. ANNA BARTSCH, Silver Spring, Md.: 3 specimens of bot larva (63911).

DUPREE, Mrs. MATTIE, Washington, D. C.: A specimen of lead ore from Baxter Springs, Kansas (63917).

DURBAN MUSEUM, Durban, Natal, Union of South Africa (through Mr. E. C. Chubb): 2 small rodents (64495).

DUTHIE, Miss RENA P. (See under Colorado State Museum, Denver.)

DWYER, Mrs. THOMAS F., and Miss CATHLEEN CASSEL KLINE, Washington, D. C.: 2 sabers, 2 daggers, and a helmet owned by Filipino insurgent officers during the Philippine Insurrection, 1898-1901; also

DWYER, Mrs. THOMAS F., and Miss CATHLEEN CASSEL KLINE—Contd.
a Cheyenne Indian beaded leather belt, collected by General Jacob Kline, U. S. Army (64943, loan).
(See also under General Jacob Kline).

DYER, FRANCIS J., American Consul, Nogales, Sonora, Mexico: 5 ferns from Texas (63968); 3 lizards, 1 toad, and miscellaneous insects, spiders, centipedes, etc., and 3 bird's eggs (64055); 5 plants from Arizona and Mexico (64130); 2 plants, cacti, *Mammillaria recurvata* (64502).

DYKAAR, MOSES WAINER, Brooklyn, N. Y.: Bust in white marble of Hon. Champ Clark, by Moses Wainer Dykaar (65067, loan).

EASTWOOD, Miss ALICE. (See under California Academy of Sciences.)

EDDY, Mrs. A. T., Enfield, N. H. (through Commandant J. M. Moore, U. S. Coast Guard, South Baltimore, Md.): Water color sketch of a proposed monument to Robert Fulton to be erected at Lower Connelton, Indiana, endorsed with the signatures of Millard Fillmore and other prominent Americans (64171).

EDWARDS, F. W. (See under London, England, British Museum Natural History.)

EDWARDS, HARRY C., Gauanoque, Ontario, Canada (through the Government Loan Organization, New York City): Painting by the donor entitled "Edith Cavell Next" (65176).

EGGLESTON, W. W., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 51 plants from Indiana (64777).

EGYPT, ZOOLOGICAL SERVICE OF, GIZA (through Capt. S. S. Fowler, Director): Skulls of 3 cats (64832).

EIGENMANN, Dr. CARL H., Indiana University, Bloomington, Ind.: 221 fishes collected in South America in 1918 (64282, exchange).

EISEMANN MAGNETO CORPORATION, Brooklyn, N. Y.: Automobile Magneto with impulse starter. Type G-4 (64628).

- ELLIOT, Lieutenant Colonel DUNCAN, U. S. Army (through Richard McCann Elliot, Bryn Mawr, Pennsylvania, and G. J. Guthrie Nicholson, New York City): American and foreign swords, a Boxer flag, 2 belts, and small arms of the 19th century (38 specimens) and 9 Filipino weapons (64560).
- ELLIOT, RICHARD McCAN. (See under Lt. Col. Duncan Elliot.)
- ELLIOTT, Mrs. I. T. Himrod, N. Y.: 15 fossils and 5 freshwater shells collected at Himrod (64320).
- ELLIS, L. W. (See under Raleigh T. Shelton.)
- EMORY, Mrs. WILLIAM HEMSLEY, Washington, D. C.: Collection of Eskimo ethnological specimens (64842, loan).
- ENGBERG, Dr. CARL C., Executive Dean, University of Nebraska, Lincoln, Neb.: Barnacle, *Balanus engerbergiana*, type specimen, from Washington (63816); 250 plus crustaceans collected at Olga, Washington (64210); 3 barnacles, paratypes of *Balanus engerbergianus*, from driftwood, Olga, Washington (64703). •
- ENGLEHARDT, GEORGE P., Central Museum, Brooklyn, N. Y.: 20 moths representing species from the Canal Zone and Nova Scotia (64268).
- ENGLISH, W. A., Care, U. S. Geological Survey, Washington, D. C.: 27 marine mollusks collected 10 miles east of Cape Llewellyn, W. Australia (63973).
- ERDIS, ELLWOOD C., Metcalf, Ariz.: Young "King's" lizard, *Gerrhonotus nobilis*, from Metcalf (63989).
- ERICSSON, CHARLES, Hallandale, Fla.: Whale skull from Hallandale (64965).
- EVANS, Dr. ALEXANDER W., Osborn Botanical Laboratory, Yale University, New Haven, Conn.; 2 plants (64729).
- EVANS, Mrs. E. M., Washington, D. C.: 35 arrows (6 with stone points), and 3 fire drills from the Indians of Idaho, collected by Dr. William R. Maddox, 1887-91 (63884).
- EVANS, M. W., Bureau of Plant Industry, Office of Forage Crops, U. S. Department of Agriculture, Washington, D. C.: 30 Hymenoptera (bees and wasps) (64837).
- EVANS, VICTOR J., Washington, D. C.: Collection of ethnological material from Java and Borneo (17 specimens) (64426); 72 baskets from the American Indians and other countries (65121). Exchange.
- FAIRMAN, Dr. CHARLES E., Lyndonville, N. Y.: Plant from New York (64376).
- FALL, H. C., Tyngsboro, Mass.: 5 beetle larvae (65042).
- FARNQUIST, CHARLES P., Spokane, Wash. (through Interior Department, U. S. Geological Survey): A specimen of haumontite from Wolf Creek Station, Lewis and Clark County, Montana (64323).
- FASSETT, TRUMAN E., Greycourt, West Falmouth, Mass. (through the Government Loan Organization, New York City): Painting by the donor entitled "U. S. Naval Guns in Action on the French Front" (65177).
- FATTIG, P. W., Gainesville, Fla. (through Mr. P. L. Ricker): 26 plants from Florida (64679); 17 specimens of plants from Florida (64968).
- FAUROTÉ, F. L. (See under Curtiss Aeroplane and Motor Corporation.)
- FAUVER, W. F., Wilcox, Ariz.: Giant whip-scorpion, *Mastigoproctus giganteus* (63892).
- FAYETTEVILLE, ARKANSAS, AGRICULTURAL EXPERIMENT STATION (through Mr. H. R. Rosen): Plant, *Rhamnus*, from Arkansas (64953).
- FEARNLEY, Mrs. JOHN, Burlington, N. J.; 2 plants collected in Maine (64041).
- FEDERATED MALAY STATES MUSEUMS. (See under Kuala Lumpur.)
- FELIPPONE, Dr. F., Montevideo, Uruguay: 341 mollusks, 50 species, 3 crustaceans, and a fragmentary worm tube from Uruguay (63791, exchange).

- FERNALD, JOSEPH E. (See under Miss Elizabeth S. Stevens.)
- FERRISS, JAMES II., Joliet, Ill. (through Dr. William Trelease): 2 plants (65036).
- FEWKES, Dr. J. WALTER. (See under J. W. Ingalls, and F. R. Whitney.)
- FIELD, L. R., Meridian, Idaho: Specimen of *Eremobates pallipes* (63896).
- FINLAND, GEOLOGICAL COMMISSION OF, Helsingfors, Finland: A collection comprising 25 varieties of geological material (64465, exchange).
- FISHER, GEORGE L., Houston, Tex.: 54 plants (63967); 80 plants from Texas (64611).
- FISHER, Mrs. SAMUEL T., Washington, D. C. (through Mrs. R. G. Hoes): 2 embroidered silk aprons made by Mrs. Sara Upham of Massachusetts (born in 1830) (64325).
- FISHER, W. S., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: 20 insects including female of *Gomphuschna*, species (63932.)
- FITTS, WILLIAM, Springfield, Mass.: 36 specimens of datolite from Westfield, Massachusetts (64609).
- FLEISHMAN, SIMON. (See under Mrs. Simon Kann.)
- FLETCHER, CHARLES W., Los Angeles, Calif (through Interior Department, U. S. Geological Survey): Fragments of the mineral boussingaultite from South Mountain, near Ventura, California (64324).
- FLETCHER, M., Imperial Entomologist (See under Agricultural Research Institute, Pusa Bihar, India).
- FLORIDA STATE GEOLOGICAL SURVEY, Tallahassee, Fla.: Type specimen of the fossil bird, *Jabiru weilli* (64997, exchange).
- FLORIDA STATE MUSEUM, Gainesville, Fla.: Marine mollusk from Florida (64950).
- FORNANZINI, GERVASO, Valtellina, Lanzada, Italy: 4 minerals from Italy (64653).
- FOSHAG, W. F., U. S. National Museum: A small collection of minerals from Amelia, Virginia (64036): prehnite crystals from Crestmore, near Riverside, California (64380).
- FOSS, J. W., San Francisco, Calif: A die, engraved in fine-grained black slate, from which castings in clay, plaster or lead can be made.
- FOWLER, Capt. S. S. (See under Zoological Service, Giza, Egypt.)
- FOX, BURTON S., R. M. P. Service, Banff, Alberta, Canada (through Dr. C. D. Walcott): A specimen of talc from Mount Whympier, near Vermilion Pass, west of Banff, Alberta, Canada (64483).
- FRACKER, S. B., Madison Wis.: Beetle, *Anametus granulata* (63956).
- FRAIPONT, Dr. CHARLES. (See under Liege, Belgium, University of Liege.)
- FREDERICK, C., Soldiers Home, Washington, D. C.: 2 Swiss bronze coins, five centimes and ten centimes, respectively, struck in 1918 (64691).
- FRY, Miss LAURA A., Lafayette, Ind. (through the Government Loan Organization, New York City): Painting by the donor entitled "Her Dream" (65178).
- FULLER, Mrs. RICHARD S., Washington, D. C. (through Mrs. Julian-James): Wearing apparel of the Derby family of Salem, Massachusetts (64430, loan).
- GAIGE, F. M. (See under Michigan, University of, Museum of Zoology.)
- GALE, HOYT S., Washington, D. C.: Samples of crude salts from the Pintados Salar, Tarapaca, Chile (64254); 2 specimens of potash from Amelie Mine, Alsace; 1 of salt from Spain, and 1 of potassium chloride with anhydrous borax from Searles Lake, California (64471).
- GARCIA Y MERCET, R., Madrid, Spain: 11 insects Chalcidoidea, 9 species (63894).
- GARDENER, Mrs. HELEN H. (See under National American Woman Suffrage Association.)
- GARESCHE, LOUIS J., Washington, D. C.: Uniform coat, sash, epaulets, dress sword and service sword, worn

- GARESCHÉ, Louis J.—Continued.
by Lieut. Col. Julius P. Garesché, U. S. Army, prior to and during the Civil War and a photograph of him by Brady (7 specimens) (64102, loan).
- GARFIELD, JAMES R., Cleveland, Ohio: Overcoat worn by President James A. Garfield (63842).
- GARMAN, Prof. H., University of Kentucky, Lexington, Ky.: 2 plants (64989).
- GATES, Prof. WILLIAM H. (See under Standard Oil Company of Louisiana.)
- GEE, Prof. N. GIST, Soochow University, Soochow, China: 60 mollusks, representing 12 species, 2 sponges, and a collection of spiders and insects; 2 crustaceans, *Caridina denticulata*, and 150 insects, all from China (64521, 64542, 64828).
- GEORGE, Mrs. SALLIE SHOCK, Baltimore, Md.: 3 painted vases from Pompeii (64815, loan).
- GEPPERT, A. V., Ruby, Alaska: 2 fossil hoof bones of a prehistoric horse (65003).
- GIBBS, Dr. H. D., U. S. Department of Agriculture, Washington, D. C. (through Dr. Edgar T. Wherry): 3 specimens of massicotite (artificial) (64009).
- GILBERT, F. M., Chicago, Ill.: 2 Devonian goniatites from Marcellus, New York (64402).
- GODING, Dr. F. W., American Consul General, Guayaquil, Ecuador: 28 snakes, 1 lizard, 2 insects and 1 fish from Ecuador (65092).
- GOING, Major CHARLES B., Islamorada, Fla.: 10 plants from Florida (64616, 64688).
- GOLD HUNTER MINING AND SMELTING COMPANY, THE, Mullan, Idaho: 3 specimens of the mineral mullanite (64441).
- GOLD MARK KNITTING COMPANY, Woonsocket, R. I.: 6 samples of worsted and wool jersey cloth (64995).
- GOODWIN, A. A., National Home, Order of Elks, Bedford, Va.: Plant, *Cytisus* (65049).
- GOODWIN, PHILIP R., Mamaroneck, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "Charge on the Hindenburg Line of the 105th Infantry, 27th Division" (65179).
- GORDON, S. G., Academy of Natural Sciences, Philadelphia, Pa.: A specimen of the mineral nesquehonite (64417).
- GOTTSCHALK, I. H., von, New York City (through the Government Loan Organization, New York City): An oil painting by the donor entitled "Fair Game for the Hun" (64345).
- GOUGH, HARRY, White Plains, Md.: A small collection of chipped arrow and spear-heads, of quartz and quartzite, found by the donor near White Plains, Maryland (64177).
- GOVERNMENT LOAN ORGANIZATION, New York City (through Capt. H. Ledyard Towle): Collection of pictures painted by various artists for the Victory Liberty Loan Display, 1919 (65181, loan).
- GRAHAM, DAVID C., Suifu, Szechuen Province, West China: 6 photographs of the natives of West China (64076); 2 invertebrate fossils and 4 mineral specimens from China (64122); a small collection of fossils and minerals from West China (64584).
- GRANT, GORDON, Los Angeles, Calif.: 7 myriopods (1 type and 6 paratypes), *Alopetholus angelus* (64759).
- GRAVES, E. W., Bentonsport, Iowa: 187 plants from Alabama (64360, 64749); 74 plants from Cuba (64613).
- GRAY KNOX MARBLE COMPANY, Knoxville, Tenn.: 5 marble slabs 2 x 5 feet (63876).
- GREENE, C. T., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: 400 specimens of Diptera (65095).

- GRINNAN, J. C., Norfolk, Va.: 2 Mediterranean mollusks, 2 species (64068).
- GRISCOM, LUDLOW, New York City: 632 plants, chiefly from Europe and Nicaragua (63827, exchange).
- GUERNSEY, Dr. JOSEPH C., Bryn Mawr, Pa. (through Dr. W. A. Dewey, Ann Arbor, Mich.): Bronze medallion of Hahnemann, by D'Angers, presented to the donor's father by Mme. Hahnemann, it being, with one other, believed to be the only ones sent to the United States (64305).
- GUGGENHEIMER, C. H. (See under Knit Fabrics Company).
- GUNNELL, LEONARD C., Smithsonian Institution: Young starling, *Sturnus vulgaris* (64983).
- HAAS BROTHERS FABRICS CORPORATION, New York City: 2 samples of trico silk knitted fabrics (64972).
- HAAS, Mrs. CHARLES C., Whitewood, S. D.: Skull with one lower jaw of an extinct insectivore, *Ictops dakotensis* (64006).
- HABERYAN, H. D., Farmerville, La.: A fresh water amphipod of the genus *Crangonyx* taken from a well (64736).
- HABIG, VITA, Cincinnati, Ohio (through the Cincinnati Museum Association): An enlarged photograph in an oval frame of the "Turkish Tom Thumb" and 39 small photographs and post cards of this little man taken in all parts of the world and of other dwarfs with whom he has evidently been associated (49 specimens) (64001).
- HALL, Prof. E. M., Dixie Normal College, St. George, Utah (through Ivar Tidestrom): 105 plants from southern Utah (64513).
- HAMILTON, THOMAS, Washington, D. C.: Horsehair worm from a cabbage, Washington, D. C. (64514).
- HANSON, H. C., Houston, Tex.: 129 plants from Texas (64004).
- HANSON, PETER, Fresh water amphipod from a well at Clarendon, Virginia (64795).
- HARDER, E. C., (See under J. E. Carney, jr.).
- HARGROVE, J. L., Washington, D. C.: A specimen of euxenite from North Carolina (64784).
- HARPER, FRANCIS P., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: 4 bird skins; from France (64299, 64338, 64479).
- HARPER, Dr. R. M., University, Ala.: 9 plants from Alabama and Georgia, and 2 plants, *Heuchera macrorhiza*, from Alabama (63833, 64390).
- HARRIMAN, Mrs. E. H., New York City: Portrait of John Muir, by Orlando Rouland (64561).
- HARRINGTON, G. L., U. S. Geological Survey, Washington, D. C.: 30 land and fresh water shells, representing 4 species, from Yukon River, Alaska, collected by the donor (64447).
- HARRISON, Dr. CARRIE, Brookland, D. C.: Sugar bowl (with cover) from the first china of Louisa Harrison, probably about 1854—English (64028).
- HARTMAN, CHARLES S., American Minister, Quito, Ecuador: Plant (64257).
- HARTOGENSIS, HENRY S. (through B. H. Hartogensis, Baltimore, Md.): 2 illuminated manuscripts of Mizrah, 1 Torah pointer of carved ivory, and 2 metal markers for the charity collection during the feast of Purim (65066).
- HATCH, Miss EMILY NICHOLS, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Washington's Birthday, 1918. (The 77th Division Parades on Fifth Avenue, New York)" (65138).
- HATHAWAY, GEORGE A., Washington, D. C.: A piece of American-made vellum (65113).
- HAY, Dr. O. P., Carnegie Institution of Washington, Washington, D. C.: 175 fossil mollusks, representing 9 species, collected about 1883 by Hon. William McAdams at Alton, Illinois

HAY, Dr. O. P.—Continued.

(64060) ; a collection of fossils from a cave near Bulverde, Bexar County, Texas (64545).

(See also under Phillips Academy, Andover, Massachusetts, and Standard Oil Company of Louisiana.)

HEALD, K. C., U. S. Geological Survey, Washington, D. C.: 14 Tertiary fish scales from Peru (64813).

HELLER, A. A., Chico, Calif.: 17 plants, chiefly grasses, from California (64515).

HENDERSON, CHARLES W. (See under Root and Simpson.)

HENDERSON, JOHN B., Washington, D. C.: Part of the William F. Clapp collection of New England land and fresh water mollusks, purchased by the donor and donated to the Museum collections, consisting of 10,000 specimens, 61 species, and 293 lots (64213) ; about 200 specimens, 33 species, of Sphaeriidae from the United States and Naiades (fresh water mollusks) from North and South America. (See also under George Spence.)

HENRY, MISS CAROLINE, Washington, D. C.: Miscellaneous pieces of scientific apparatus used by Joseph Henry (1799–1878) during the latter part of his life (70 specimens) (64599).

HERIBERTO, BROTHER. (See under Colegio San Pedro Apostol, Cartagena, Colombia.)

HERING, CARL, Philadelphia, Pa.: Bound typewritten copy of "Chronology of the Life of Constantine Hering, the Father of Homeopathy in America," and a reprint of part of the same from the Transactions of the International Hahnemannian Association (64089).

HERRERA, Dr. A. L., Direccion de Estudios Biologicos, Mexico, D. F., Mexico: Plant, *Trichilia hirta*, from Mexico (64215) ; 3 crustaceans, *Apus aqualis*, found in a swamp on the plantation of "Echagaray" (Municipality of Atzacoptzalco, D. F., Mexico) (64522) ; 3 birds from Lower California (64539) ; A crus-

HERRERA, Dr. A. L.—Continued.

tacean, *Panulirus inflatus*, from Lower California, and an alcyonarian from the Gulf of Cortez, Lower California (64623).

HESS, F. L. (See under C. N. Carpenter, J. Gillingham Hibbs, Homestake Mining Company, Molybdenum Mines Company, C. W. Purington, Raritan Copper Works, R. and S. Molybdenum Company, W. I. Seigle.)

HEUYRARD, H. (See under Bonaparte, Prince Roland.)

HEWITT, Mrs. A. C., New York City: Bound volume "The Lincoln Centennial Medal" containing a bronze copy of the medal set in wood from Mr. Lincoln's office in Springfield, Illinois (65077).

HEWITT, Dr. C. Gordon, Dominion Entomologist, Ottawa, Canada: 4 specimens of dipterous larvae from Para, Brazil (64626). (See also under Canada.)

HEWSON, Mrs. J. H., Washington, D. C.: Military saddle and bridle, with accessories, owned by Lieut. General John M. Schofield, U. S. Army (11 specimens) (64220).

HIBBARD, RAYMOND R., Buffalo, N. Y.: 460 specimens of Middle Devonian fossils from western New York (63985, exchange) ; 400 specimens of Devonian worm and fish teeth (conodonts) (64291, exchange) ; 10 small slabs with conodonts from the Devonian of western New York (64869, exchange) ; 20 shale slabs with fossil ostracoda from Alden, New York (65000).

HIBBS, J. GILLINGHAM, Denver, Col. (through F. L. Hess) : Specimen of ferberite and sylvanite from Boulder County, Colorado (63863).

HIGGINS, H. C., Belmar, N. J.: 4 Philippine Island shells, 4 species (63870) ; 4 land shells representing 3 new subspecies, collected by C. M. Weber on Palawan and Tidpole Islands, P. I. (64065).

HILTON, Dr. S. L., Washington, D. C.: Opium pipe, specimen of Siam benzoin, and specimen of Jequirity seeds (63982).

- HILTON, DR. WILLIAM A. (See under Pomona College.)
- HINKLEY, A. A., DuBois, Ill.: 178 mollusks representing 32 species from Guatemala, including 2 figured types (64771); 15 land and fresh water shells, 4 species, from Mexico and Guatemala (64801).
- HINTON, CHARLES LOUIS, Bronxville, N. Y. (through the Government Loan Organization, New York City): Plaster figurine by the donor entitled "Columbia's Call to Arms" (64346).
- HIORAM, Brother, Colegio del Sagrado Corazon, Guantanamo, Oriente, Cuba: 107 ferns, chiefly from Cuba (64251).
- HIPSHUR, EDWARD E., Barboursville, W. Va.: 3 plants (64072).
- HITCHCOCK, Prof. A. S., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 2 plants from the Hawaiian Islands (64097); plant from Santo Domingo (64728).
- HITT, Mrs. R. S. R., Washington, D. C.: 2 mounted birds, quezals, *Pharomachrus mocinno*, from Guatemala (64666).
- HOAR, Capt. ROGER SHERMAN, Aberdeen Proving Ground, Md.: Box turtle from Aberdeen Proving Ground (64091).
- HOESON, Mrs. A. H., Fort Myers, Fla.: Plant from Florida (63795).
- HODGE, Mr. F. W., New York City: Plant from New Mexico (63840).
- HOES, Mrs. R. G., Washington, D. C.: A vinaigrette, hand-embroidered dress pattern, hand-embroidered colarete, and a collection of colored fashion-plates, bound (63850); 8 specimens of wearing apparel (64427); an old trunk which has on it "John Hazard," New York, 1705 (65119). Loan.
(See also under Mrs. Samuel T. Fisher, and Miss Sydney Price).
- HOFER, G. H., Tucson, Ariz.: 9 snakes and 2 spiders from Arizona (64720).
- HOFFMAN, HARRY L., Old Lyme, Conn. (through Government Loan Organization, New York City): Painting by the donor entitled "The Argonne" (65134).
- HOLLISTER, N., Superintendent, National Zoological Park, Washington, D. C.: 200 plants from Wisconsin (63907); skull of a snapping turtle, *Chelydra serpentina*, from Delavan, Wisconsin (63913); Carolina wren, *Thryothorus ludovicianus*, from Washington, D. C. (64451).
- HOLLOWAY, T. E., New Orleans, La.: Larvae of 4 kinds of sugar-cane borers from Java and Mauritius (64597).
- HOLMES, Dr. WILLIAM H., U. S. National Museum: Oil painting by Nicolas Poussin entitled "The Philistines Attacked with the Plague" (color sketch for his large picture in the Louvre, Collection of Louis XIV) (64697, loan).
- HOMESTAKE MINING COMPANY, Lead, S. D. (through Mr. F. L. Hess): 2 specimens of tungsten ore (63808).
- HOPKINS, L. S., Kent, Ohio: 6 plants from Ohio (64895).
- HOPKINSON, CHARLES, Manchester, Mass. (through the Government Loan Organization, New York City): 2 paintings by the donor, entitled "The Sinking of the Lusitania" and "The Sinking of Hospital Ship by U-Boat" (65132).
- HOTCHKISS, Dr. W. O., State Geologist, Madison, Wis., and Dr. E. O. ULRICH, U. S. Geological Survey, Washington, D. C.: Collection of Upper Cambrian fossils numbering about 10,000 specimens from Wisconsin (64111).
- HOUGH, Dr. WALTER, U. S. National Museum: 15 specimens of Tertiary fossils from Maryland (63947).
- HOUSE, H. D. (See under New York State Museum, Albany, N. Y.)
- HOUSHOLDER, V. H., Gila Bend, Ariz.: Banded gecko, *Coleonyx variegatus*, from Gila Bend (64020); snake, *Chelomeniscus ephippicus* (64240).

- HOWE, J. R., Fairhaven, Mass.: A muzzle-loading pistol made by Robbins, Kendall and Lawrence, Windsor, Vermont, 1846, with hammer underneath barrel (65083, loan).
- HOWELL, Miss FELICIE WALDOW, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Return of the 27th Division (Marching up Fifth Avenue)" (65136).
- HOWES, TOWNSEND (through Dr. Walter Hough, U. S. National Museum): Japanese basket made from kelp from San Francisco, California (64015).
- HUBBELL, HENRY SALEM, Pittsburgh, Pa. (through the Government Loan Organization, New York City): Painting by the donor entitled "Portrait of Captain Walter R. Flannery, 7th U. S. Infantry" (65135).
- HUBBY, Miss ELLA F., Pasadena, Calif.: Type collection of western Indian baskets (64687).
- HUBERT, H. EDWARD, New Orleans, La.: 15 mollusks and 8 other miscellaneous invertebrates from Louisiana; also 34 plants, 1 mammal, 17 vials of insects, and 12 fishes (63905); a collection of miscellaneous invertebrates, a frog and a lizard from various localities (64982).
- HUCKEL, EARLE W., Germantown, Philadelphia, Pa.: Collection of prints (366 specimens) (64874).
- HUMM, FRED A., Fort Myer Heights, Va.: Prairie dog (65005).
- HUMMEL, E. W., Sonoita, Ariz.: 2 upper molars of a small species of horse, and 2 upper molars of a species of camel, from the Pleistocene, Santa Cruz County, Arizona (64157).
- HUMPHREY, MASTER L. M., Glen Echo, Md.: Copperhead snake, *Agkistrodon mokesen*, from near Cabin John Bridge, Maryland (64053).
- HYACINTH, Brother F., Philadelphia Protectory for Boys, Phoenixville, Pa.: 163 plants from Maryland (64147).
- IDDINGS, Dr. J. P., Brinklow, Md.: 2 specimens of pegmatite out of Quincy granite, from Quincy, Massachusetts (63937).
- ILLINGWORTH, Dr. J. F., Meringa, near Cairns, North Queensland, Australia: 175 Australian insects (64023).
- (See also under Sugar Experiment Station, Meringa near Cairns, Queensland, Australia).
- INGALLS, J. W., San Diego, Calif. (through Dr. J. Walter Fewkes): A Paiute fire drill and a Shoshone pick and shovel of mountain mahogany (64119).
- INSTITUTE OF SCIENCE, GOVERNMENT OF FORMOSA, JAPAN (through Prof. M. Oshima): 36 decapod crustaceans, representing 19 species, from Formosa (64818); 2 decapod crustaceans, 2 species from Formosa (64819, exchange).
- INSTITUTO DE LA SALLE, Bogota, Colombia (through Brother Aristide Joseph): Archeological objects from various localities in Colombia, and 2 earthenware vessels made by the Quindio Indians in imitation of antiquities (64356).
- INSTITUTO DE LA SALLE, Correo Nuñoa, Chile (through Brother Claude Joseph) 52 plants (65048).
- INTERIOR DEPARTMENT:
United States Geological Survey:
 Specimens collected during the summer of 1918 by Prof. T. Nelson Dale in the dolomite and calcite areas of western Massachusetts (63832); 3 lots of miscellaneous geological material collected by Mr. N. H. Darton (63988); 8 boxes of various mineral specimens (64062); 5 specimens of manganese oxide ores, including duplicate material illustrating in part a bulletin of the U. S. Geological Survey (64083); a slab of limestone full of large cup corals, from Osage County, Oklahoma (64168); specimens of carnotite from Coal Creek, Colorado, and a specimen of sericite from Georgia

INTERIOR DEPARTMENT—Contd.

(64212); 42 boxes of borings from near Fallon, Nevada, in the Black Rock Desert, the Smoke Creek Desert, and elsewhere (64275); reference collection illustrating report by Mr. F. L. Ransome on the Ray and Miami copper districts, Arizona (Professional Paper 115), and 2 boxes of miscellaneous material (64279); samples from well bored at Searles Lake, California (64280); thin sections of rocks and ores from collections made by Mr. James M. Hill (64284); 118 plants collected in Alaska by Mr. G. L. Harrington (64368); 86 specimens illustrating the ore deposits of Tonopah, Nevada, as described in Professional Paper 104, by Messrs. Edson S. Bastin and Francis B. Laney (64393); 3 small lots of Pleistocene vertebrate fossils collected by Mr. William C. Alden in western Iowa and eastern Nebraska (64403); 4 Eocene mammalian teeth collected by Mr. D. F. Hewett on McCulloch Peak, Bighorn Basin, Wyoming (64419); lot of mineral specimens (64437); 27 boxes of Alaskan material (64526); 37 fossil land and fresh water mollusks, 6 species from Red River bottom lands, Burkburnett, Texas (64527); a collection of igneous rocks illustrating the Hot Springs, Arkansas, folio (64534); 2 teeth and fragment of a foot bone of Pleistocene horse, collected by Mr. W. C. Alden in Iowa (64538); 21 additional specimens bearing on the geology of the Tintic District, Utah (64563); the type specimen of the mineral hausmanite (64608); box of potash well borings (64648); a box of phosphate (64649); 9 boxes of minerals collected by Mr. W. T. Schaller (64650); 30 specimens of teeth, plates, bones, etc. of

INTERIOR DEPARTMENT—Contd.

fishes from the Pennsylvania rocks of Missouri (64671); about 1,000 specimens of invertebrate fossils and 15 shark's teeth from the Cannonball marine member of the Lance formation of North and South Dakota, including types and figured specimens described in Professional Paper 128-A (64700); 21 photographs showing mining of inorganic substances used in medicine (64718); 100 drawers of Silurian and Devonian invertebrates collected by Mr. E. M. Kindle (64776); Hayes' Nicaragua collection; Hayes and others' Southern Appalachian collections; Hague's Yellowstone Park collection; and other minor collections (64799); pyrite filled cavity of a flattened stem of the fossil plant, *Calamites suckowii* (64939); rocks from the Idaho and Montana cinnabar deposits, collected and described by Mr. E. S. Larsen (64949); rock specimens collected in Alaska by Messrs. E. M. Eakin and A. G. Maddren (64985); brass projector and a Burt solar compass (65070). (See also under Dominican Republic, Charles P. Farnquist and Charles W. Fletcher.

INTERIOR DEPARTMENT (See also under Smithsonian Institution).

IOWA MUSEUM OF NATURAL HISTORY, STATE UNIVERSITY OF IOWA City, Iowa; 11 isopod crustaceans, representing 5 species, collected by the Barbados-Antigua Expedition of the State University of Iowa, 1918 (64840).

ITURBE, Dr. JUAN, Clinico Laboratorio, Caracas, Venezuela: 2 specimens of *Pseudothelphusa*, the crab which serves as the secondary intermediate host of the lung distome (64572); 5 mollusks, representing 2 species, which serve as intermediate host of *Schistosoma mansoni* (64629).

- JACKSON**, Prof. H. S., Purdue University, Lafayette, Ind.: 28 specimens of rusts from the United States (64753, exchange).
- JAMES**, Mrs. JULIAN-, Washington, D. C.: Hair dressing outfit, and a book entitled "Chats on Costumes" by C. Woolliscroft Rhead, R. E., New York, 1906 (304 pages) (63883); pair of child's red Russia leather shoes (63849). Loan.
- (See also under Andrew Hussey Allen, Miss Mabel T. Boardman, Mrs. Joseph Stanley Brown, Mrs. R. Barrett Browning, Mrs. Albert Cottle, Mrs. Richard S. Fuller, Mrs. John D. Larkin, Mrs. F. E. Partington, Miss Sidney Price, Mrs. C. W. Richardson, and Mrs. Woodrow Wilson).
- JANSE**, A., Care, Mr. William Schaus, U. S. National Museum. 100 moths from South Africa (65099).
- JENNINGS**, ESTATE OF ALLAN H. (through Miss Estelle Louise Jennings, executrix, New York City): 1298 birds, 13 mammals, and 2 glass sponges, a collection chiefly from North America and the Bahama Islands (64454).
- JEWISH WELFARE BOARD, NATIONAL HEADQUARTERS**, New York City (through Col. Harry Cutler, chairman): Jewish prayer shawl (talith) in two pieces, and one phylactery, which were secured by Mr. John Goldhaar, Field Secretary of the Jewish Welfare Board, from the Synagogue of Rheims, France, after the invasion of the German Army (64002).
- JIMÉNEZ**, Orón, San José, Costa Rica (through Dr. H. Pittier): 105 plants from Costa Rica (64094, 64408).
- JOHANNSEN**, Prof. O. A., Cornell University, Ithaca, N. Y.: Specimen of helomyzid (64520).
- JOHANSEN**, FRITZ, Geological Survey, Victoria Memorial Museum, Ottawa, Canada: 2 catfish, *Ameiurus nebulosus*, collected in the vicinity of Ottawa, Canada, and 18 amphipods, representing 2 species, from Quebec, Canada (64871, 65038).
- JOHNSON**, Mrs. A. B. (See under Miss Bertha Cohen.)
- JOHNSON**, FRANK TENNEY, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Camel Supply Train Resting" (65133).
- JOHNSON**, HARRY, Tucuru, Alta Verapaz, Guatemala: 3 plants, cactus (64938); through the Office of Foreign Seed Plant Introduction, Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 200 plants from Guatemala (64988).
- JOHNSON**, RALPH CROSS, Washington, D. C.: Landscape "Dedham Valley," by John Constable (1776-1837); also 2 paintings "The Doctor's Visit" by Jan Steen (1636-89), and "Christ in the Temple" by G. B. Tiepolo (1696-1770) (64940, loan).
- JONES**, E. E., Miami, Ariz.: Beetle, *Dynastes granti* Horn (64056).
- JONES**, FRANCIS C., New York City (through the Government Loan Organization, New York City): 2 paintings by the donor entitled "Trail of the Hun" and "Home Again" (65146).
- JONES**, H. BOLTON, New York City (through the Government Loan Organization, New York City): Paintings by the donor entitled "The Finger of the Hun" and "Wheat for the Allies" (65145).
- JONES**, J. IRA, Jackson, Tenn.: Specimens of fossil wood from Jackson, Tennessee (64033).
- JONES**, STOCKTON W., Silver Spring, Md.: 4 mosaics brought from Italy about 1872 (64602).
- JONES**, Hon. W. L. (See under Senate of the United States, Committee on Commerce.)
- JORDAN**, Dr. DAVID STARR (See under Leland Stanford Junior University).
- JORGENSEN**, PEDRO, Botanical Gardens, Asuncion, Paraguay: 100 butterflies from Argentina (65111).

- JOYNER, G. W., jr.**, Denniston, Va.: A fossil tooth of a horse from southern Halifax County, Virginia (64745).
- JUDD, NEIL M.**, U. S. National Museum: A chert blade found in Cottonwood Canyon, Kane County, Utah (63815).
- JUNIOR OFFICERS CLUB**, New York City (through John F. Parker, Director): A painting by John F. Parker entitled "Zero Hour" (64373).
- KAHN, A. R.**, Laredo, Tex.: Piece of a nest from southern Mexico made by white ants (64537).
- KANN, Mrs. SIMON**, Washington, D. C. (through Simon Fleishman): Illuminated manuscript of a Jewish Mizrah, framed (64944).
- KEBLER, Dr. LYMAN F.** (See under United States Pharmacopoeial Convention, Incorporated).
- KELLERS, Lieutenant H. C.**, Headquarters 13th Naval District, Bremerton, Wash.: 20 garter-snakes, 3 lizards, 2 salamanders and 3 toads from Gorse Creek, Kitsap County, Washington (64685).
- KELLOGG, REMINGTON**, Washington, D. C.: 21 land mollusks from Is-sur-Tille, France (64064).
- KENNEDY, C. H.**, Ohio State University, Columbus, Ohio: 2 dragonflies, 1 a (male) holotype, and the other a (female) paratype (64576); 2 dragonflies from California (64084). (See also under Ohio State University, Department of Zoology and Entomology.)
- KENT, T. W.**, Smithsonian, Ala.: Quartzite pestle plowed up in a field near Smithsonian (64047).
- KENT, Hon. WILLIAM**, U. S. Tariff Commission, Washington, D. C.: A collection of Paiute and Bannock crania and bones (64504).
- KEPNER, Mrs. INA B.**, Washington, D. C.: Navaho tufted blanket from Keames Canyon, Arizona (64811).
- KIEFER, L. A.**, Indianapolis, Ind.: Plaster cast of a drilled boat-shaped amulet and of an undrilled amulet, the originals of which were found in Ohio (64557).
- KILLIP, ELLSWORTH P.**, U. S. National Museum: 30 plants from the Canal Zone; 141 plants from Jamaica, and 89 plants from New York State (63809, 64092, 65033).
- KIMBALL, Miss K. D.** (See under R. R. Stewart.)
- KING, PAUL**, Philadelphia, Pa. (through the Government Loan Organization, New York City): Portrait in oil by the donor of Major General Hugh L. Scott, U. S. Army (65131).
- KIRK, Captain B. C.**, Belle Haven, Beaufort County, N. C.: 2 mounted hybrids between the mallard and muscovy ducks (64827).
- KIRTLEY, Dr. C. L.**, Challis, Idaho: A specimen of the mineral ptilolite from near Challis, Idaho (64285).
- KISER, EDWIN D.** (through Department of State, Washington, D. C.): 3 teeth and ear bones of a sperm whale from Chile (64244).
- KLINE, Miss CATHLEEN CASSEL**. (See under Gen. Jacob Kline, U. S. Army and Mrs. Thomas F. Dwyer.)
- KLINE, Gen. JACOB**, U. S. Army, (through Mrs. Thomas F. Dwyer and Miss Cathleen Cassel Kline, Washington, D. C.): Collection illustrating the arts and industries of the Philippines (64922).
- KLOSS, C. BODEN**, Federated Malay States Museums, Kuala Lumpur, and Dr. WILLIAM L. ABBOTT, Philadelphia, Pa.: 6 bird skins from Siam (64226).
- KNAB, FREDERICK** (through A. N. Caudell, executor, Washington, D. C.): 20,000 specimens of Coleoptera and Diptera (64991, bequest).
- KNAB, FREDERICK, ESTATE OF** (through A. N. Caudell, executor, Washington, D. C.): 26 Silurian trilobites (63918).
- KNIT FABRICS COMPANY**, Allentown, Pa. (through C. H. Guggenheimer, New York City): 4 samples of worsted and wool jersey cloth (64993).

- KNOWLES, W. A., U. S. National Museum: 2 silver military medals of the type awarded by the Austrian Government for service during the World War, 1914-1918 (64331).
- KNOWLTON, Dr. F. H. (See under C. F. Bowen.)
- KNOX, JAMES, Brooklyn, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "First Attack of the Tanks" (65130).
- KRYGER, I. C., Rosenvej, Gentofte, Denmark: 10 rare beetle larvae, *Byturus tomentosus* (64738).
- KUALA LUMPUR, Federated Malay States, FEDERATED MALAY STATES MUSEUMS: Skin of a flycatcher, *Rhinomyias tardus*, from the Malay Peninsula (64524, exchange).
- KUWANA, Prof. S. I., Imperial Plant Quarantine Station, Yokohama, Japan: Adults and early stages of 5 species of grain-infesting moths of Japan (64132).
- LACEY, HOWARD, Kerrville, Tex.: 30 plants from Texas (63951).
- LANEY, Dr. F. B., U. S. Geological Survey, Washington, D. C.: A specimen of native antimony from Kern County, California, and a sample of mine water from Lucania Tunnel, Idaho Springs, Colorado (63961).
- LARKIN, Mrs. JOHN D., Buffalo, N. Y. (through Mrs. Julian-James): Lace fichu, lace handkerchief, and a cameo-cut glass breastpin with gold backing (64329, loan).
- LAWALL, CHARLES H., Philadelphia, Pa.: A cross section of old cedar water pipe (64822).
- LEA, JAMES E., jr., Washington, D. C.: Sword cane used during the early part of the nineteenth century by Captain Zacariah Lea, Mississippi Militia, War of 1812 (64411).
- LEAR, CHARLES B., Balboa, Canal Zone: Echinoderm, *Encope micropora*, from the beach at the Pacific entrance of the Panama Canal (64591).
- LEE, Miss ELIZABETH C., Baltimore, Md.: 4 Indian baskets, a string of glass-and-shell beads, an iron spearhead and a Turkish scarf (65114).
- LEE, O. IVAN, Jersey City, N. J. (through Dr. Edgar T. Wherry): A crystal of manganotantalite from Amelia, Virginia, described by Lee and Wherry, and samples of pyrrhotite from the Irish Creek tin mine, Virginia (64276).
- LEHMAN, KARLE, Edwards, Miss.: An adult female specimen of *Paragordius varius*, a parasite in crickets (64013).
- LELAND STANFORD JUNIOR UNIVERSITY, Stanford University, Calif. (through Dr. David Starr Jordan): 3 slabs containing specimens of the fossil herring, *Xyngreus* (64580).
- LENMAN, Miss ISOBEL H., Washington, D. C.: An Apache arrow basket, 2 Navaho baskets, and 12 Iroquois ceremonial masks (64924, loan).
- LETCHER, J. R. (See under Utah State Historical Society).
- LICHTENAUER, J. MORTIMER, New York City (through the Government Loan Organization, New York City): Portrait of Brig. Gen. Palmer H. Pierce, and a painting entitled "America to the Fray" (65149).
- LIEGE; BELGIUM, UNIVERSITY OF LIEGE (through Prof. Dr. Charles Fraipont): A human skull of the Neolithic period, from Belgium (65116, exchange).
- LILLY AND COMPANY, ELI, Indianapolis, Ind.: 6 official preparations of cascara sagrada (64964).
- LINCOLN MOTOR COMPANY, Detroit, Mich.: 12 Cylinder Liberty aeroplane motor, built to disclose interior parts in operative relation (64440).
- LINDMAN, Dr. CARL A. M. (See under Stockholm, Sweden, Riksmuseets, Botaniske Avdelning, Vetenskapsakademien.)
- LODGE, Mrs. GEORGE, Washington, D. C.: Glass vase of Phœnician or Cyprian origin found in Greece (64937).

- LODING, Dr. H. P., Mobile, Ala.: Snake, *Pituophis*, from 14 miles southwest of Mobile (64170).
- LONDON, ENGLAND, BRITISH MUSEUM (NATURAL HISTORY): 77 recent bryozoans, 75 species, including 9 types (64313, exchange); (through Mr. F. W. Edwards) 14 mosquitoes from England (64758); 3 crustaceans representing the species *Urocaridella gracilis*, from Port Blair, Andaman Islands (64772, exchange); (through Sir C. Hercules Read) 37 prehistoric stone implements from India (64859); samples of 3 meteoric stones, Appley Bridge, Mornans and Ogi (64890, exchange).
- LONG, Mrs. D. GRIGSBY (See under Miss Bertha Cohen).
- LONG, Dr. FRANCES, Alpine Laboratory, Manitou, Col.; 2 wasps, *Ectemnius montanus* (male) and *Oxybelus*, species (64558).
- LONGMAN, HEBER A. (See under Brisbane, Queensland, Australia, Queensland Museum).
- LOOKER, JOHN C., Dallas, Pa.: A fossil plant, *Annularis sphenophylloides*, from near Big Heart, Oklahoma (64174).
- LOOMIS, H. F., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: 564 insects, mostly beetles, from China (64863).
- LOOMIS, Miss MARTHA L., Sherborn, Mass.: 7 plants from Massachusetts (63864).
- LOUISIANA STATE MUSEUM, THE, New Orleans, La. (through Percy Viosca, jr.): Marine planarian and 2 sea anemones from *Sargassum* off Louisiana (64632).
- LOVERIDGE, Colonel ARTHUR, St. Helena, Clevedon, Somerset, England: 76 lizards and 32 snakes (64942).
- LOWE, Miss EDITH BLINSTON, Washington, D. C.: 13 pieces of English porcelain, early Spode, dragon design in sanguine and yellow with gilt (64488, loan).
- LOWE, HERBERT N., Long Beach, Calif.: 14 mollusks, 2 species, including types of 2 new subspecies, from Point Reyes, California (64410); 6 land shells from California representing 2 species (64721); 3 Philippine land shells, 2 species, representing 2 new subspecies (64820).
- LUCAS, F. R., Washington, D. C.: A one-eared wild rabbit from Virginia (64351).
- LUDWIG, C. A., Auburn, Ala.: Lizard, *Sceloporus undulatus* (64261).
- LYON, Dr. M. W., jr., South Bend, Ind.: 110 bird skins and a collection of 716 plants from the United States (63977); 10 birds, 264 eggs, and 13 nests, from the United States (64191); skin and skull of a bat (64834).
- MCALLISTER, Mrs. J. S., Washington, D. C.: A small collection of minerals (64435).
- MCANDREW, FRANK J., Nogales, Ariz.: Specimen of *Golveria gargamella* (64188).
- MCASHON, Sergeant J. E., Herndon, Va.: Purple finch, *Carpodacus purpureus*, from Virginia (64907).
- MCATEE, W. L., Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.: 31 plants from the District of Columbia and vicinity (64322); 15 plants from Indiana (64511); 45 plants from the District of Columbia and vicinity, collected by W. L. McAtee, F. P. Fletcher, and others (64662).
- MCBRIDE, C. H., Washington, D. C.: Collection of Civil War envelopes decorated in colors with patriotic designs and cartoons (292 specimens) (64743).
- MCCALMONT, HARRY L., Washington, D. C.: 1 Boehme System flute and 1 Oboe or Hautboi, used in the present day bands and orchestras (65117).
- MCCARTHY, TIM C., Wickes, Mont.: A sample of gray sulphide of lead and bismuth (64193).

- MCCLELLAN, Hon. GEORGE B., Princeton University, Princeton, N. J.; 2 gold watches owned by Major General George B. McClellan, U. S. Army (64386).
- MCCOLL, W. R., Owen Sound, Ontario, Canada: 39 plants from Canada (64401, exchange); 5 plants, *Stachys lanata* (64462).
- MCDANIEL, Miss EUGENIA, East Lansing, Mich.: 5 flies *Scatella lugens* of the family Ephydriidae (64627).
- McFARLAND, Prof. FRANK T., University of Kentucky, Lexington, Ky.: Plant, *Marsilea*, from Kentucky (64896).
- MCGARRY, AMBROSE, Salt Lake City, Utah: Archeological objects found in mounds at Beaver City, Utah (23 specimens) (63816).
- MCKENNEY, Dr. R. E. B., Cosmos Club, Washington, D. C.; Salamander and 3 frogs collected April 22, 1918, at Blois, Loire et Cher, France, by the donor and J. L. Chapin (64664).
- MCKESSON AND ROBBINS, New York City: 7 official pharmaceutical preparations obtained from the animal kingdom (64762).
- McLACHLAN, Hon. R. W., Montreal, Canada: 2 Canadian one cent pieces issued in 1920 (64655, 65103).
- McMASTER, GEORGE, Anchorage, Alaska: Skull of a bear from Alaska (64756).
- MADDREN, A. G., Care, U. S. Geological Survey, Washington, D. C.: 7 freshwater mollusks collected at Carramanche Creek, Texas (64974).
- MALLINSON AND COMPANY, Incorporated, H. R., New York City: 7 samples of plain and printed silk fabrics, and 3 samples of silk knitted fabrics, and 1 each of printed crepe and hand-block printed voile (63914, 64858).
- MANDEL, W. L., Ciego de Avila, Camaguey, Cuba: Asbestos from Cuba (64876).
- MANN, Dr. WILLIAM M., U. S. Department of Agriculture, Washington, D. C.: 11 specimens, 5 species, of Brazilian cassidids (63891); type of *Cychrus manni* (64034); nematode, *Ascaridia perspicillum*, taken from a hen's egg (64067); tree-toad, *Elutherodactylus ricordii*, and a lizard, *Sphacriodactylus decoratus*, from the Bahamas (64250); 12 terrestrial isopods, 4 species, and 2 land shells collected in the Bahamas in 1919; 5 Cuban land shells, and 1 terrestrial isopod from Abyssinia, all collected by the donor (64286) type of the parasitic fly, *Microdon newcomeri* (64363); 5 specimens of basket weave illustrating the manufacture of arm bands, from Rubiana Lagoon, New Georgia, British Solomon Islands (64425); birds, reptiles, crustaceans, mollusks and *Peripatus* collected by the donor in Honduras (64912).
- MANNING, ISAAC A., President, American Chamber of Commerce of Colombia, Barranquilla, Colombia, South America: Photograph of ancient Colombian Indian gold ornaments (63983).
- MANSFIELD, Mr. and Mrs. W. C., Washington, D. C.: 30 mollusks collected on the shore of Lake Ontario, Crescent Beach, New York (64084).
- MARLBOROUGH, THE DUCHESS OF, AND AMERICAN WOMEN LIVING IN THE UNITED KINGDOM (through the Department of State, Washington, D. C.): A statue in white marble by Francis Derwent Wood, R. A., 1915 "of William Pitt, Earl of Chatham, the British champion of American Liberty, presented by American women living in the United Kingdom as a memorial of the hundred years peace between the two kindred nations and as an expression of their love for the land of their birth, and the land of their adoption, 1815-1915." (Inscribed marble pedestal) (64779).

- MARRIOTT, CRITTENDEN, Washington, D. C.: Typewritten announcement of the conclusion of the armistice between the Allies and the Germans, issued by the Mayor of Nancy, France, November 11, 1918 (64223).
- MARSH, FRED DANA, Cove Guard, Sakonnet, R. I. (through the Government Loan Organization, New York City): Painting by the donor entitled "Over the Rhine to Victory" (65129).
- MARSHALL, E. B., Laurel, Md.: Skulls of 2 opossums, *Didelphis*, skulls of 25 muskrats, *Ondatra*, skull of a skunk, *Meophitis*, and skull of a mole, *Scalopus* (63812); skins and skulls of 3 rodents and the skulls of 2 marsupials (64496); specimen of crow, *Corvus brachyrhynchos*, and skin and skull of a weasel from Maryland (64740, 64755).
- MARSHALL, GEORGE B., U. S. National Museum: Specimen of hickory shad, *Pomolobus mediocris*, collected at Benedict, Maryland, August 19, 1919 (63933); grass snake, from Laurel, Maryland (64399); skull of a bear, *Ursus americanus* (64570).
- MARTIN, JOHN A., Maricopa, Calif.: Specimens of bentonite (64007).
- MARTIN, DR. LYMAN A., Binghamton, N. Y. (through American Institute of Homeopathy, Chicago, Ill.): Copy of the Transactions of the American Institute of Homeopathy, Volume 1 (64807).
- MARTINEK, IRWIN O., Lisle, Ill.: 259 plants, chiefly from Illinois (64273).
- MARYLAND GEOLOGICAL SURVEY, Baltimore, Md.: 78 type and other vertebrate fossils (64535, deposit).
- MATSUMOTO, T., Harvard University, Cambridge, Mass.: 2 specimens of piedmontite schist from Japan (64865).
- MATTHEWS, E. H., Largs, South Australia: 4 species of mollusks, *Stenochiton*, and 1 photograph from South Australia (64792).
- MATTHEWS, RANSOM, Selma, Calif.: A collection of automobile and motorcycle spark plugs and tire vulcanizers (64963, loan).
- MATTINGLY, CLINTON L., Washington, D. C.: German canteen and metal number plate from German railroad car captured by American Expeditionary Forces during the World War, 1918 (65028).
- MAXON, WILLIAM R., U. S. National Museum: Cactus, *Opuntia*, from Anne Arundel County, Maryland (63804).
- MAY, E., Rio de Janeiro, Brazil: 30 rare moths (65101).
- MAY, COLONEL HENRY, Washington, D. C.: Adams revolver, 1851; Spanish Mauser, 1891, and Spanish Carbine, 1891 (63829).
- MAYOR, DR. ALFRED G., Princeton, N. J.: 12 land mollusks, 3 species, from Tobago, British West Indies (64674).
- MAYNARD, ERNEST A., Jamaica, N. Y.: Specimen of datolite from Westfield, Massachusetts (64202, exchange).
- MEARNS, estate of Dr. E. A. (through Dr. C. W. Richmond, U. S. National Museum): Collotype and a chromolithograph (65104).
- MELANDER, Prof. A. L., Pullman, Wash.: 15 sciomyzid flies, comprising paratypes of 4 new species and 1 new genus, with 2 additional named species not previously represented in the Museum collection (64230): 3 flies, *Cocnosia oregonensis* (64517).
- MERCK AND COMPANY, New York City: Specimen of No. 40 Nux Vomica powder (64366).
- MERRIAM, DR. C. HART, Washington, D. C.: Cross section of a trunk of a California lilac, *Ceanothus thyrsiflorus* (64981).
- MERRICK, ROLAND, Randlett, Okla.: Tiger salamander, *Ambystoma tigrinum*, from Randlett (64026).
- MERTON, Mrs. JAMES, Chevy Chase, D. C.: About 75 minerals (64267).
- MESTAYER, R. L., Wellington, New Zealand: 4000 foraminifera, 6 slides, from the east coast of New Zealand (65004).

- METROPOLITAN MUSEUM OF ART**, New York City: Gold medals and other awards presented to Cyrus W. Field in recognition of his services in connection with the laying of the Atlantic Cable; also oil paintings and water color sketches illustrating the progress of the work (94 specimens) (64761; loan).
- MEXICO**, Mexico, DIRECCION DE ESTUDIOS BIOLOGICOS: Plant from Mexico (64552).
- MICHAEL**, S. G., Engle, W. Va.: 4 lesser scaup ducks, *Marila affinis*, from West Virginia (64312).
- MICHEL AND KRIEGER**, New York City: 7 samples of artificial silk knitted fabrics "Tricolette" (64872).
- MICHIGAN, UNIVERSITY OF**, MUSEUM OF ZOOLOGY, Ann Arbor, Mich. (through Mr. F. M. Gaige, curator): 37 Odonata including 18 species collected by Mr. Gaige in Davis Mountains, Texas, Fort Davis quadrangle (63920); 4 mollusks, *Orcohelix idahoensis baileyi*, from Snake River Canyon, Idaho (64785).
- MIDDLETON, CLIFFORD L.**, New York City (through Stanley G. Middleton): Portrait in oil of the late Honorable Andrew D. White by Stanley Grant Middleton, 1914 (64760).
- MIDDLETON, WILLIAM**, East Falls Church, Va.: 7609 land shells, 7 species, from East Falls Church (64046, 64120).
- MIELATZ, CHARLES F. W.**, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The Battle Fleet" (65165).
- MIGEL, J. A.**, Incorporated, New York City: A sample of novelty sport silk "1920 Fan-Ta-Si" (64199).
- MILLER, MRS. FLORENCE**, Washington, D. C.: Dress sword with scabbard, presented to Lieutenant Colonel James S. Crall, 82nd Ohio Infantry, by the non-commissioned officers and privates of his regiment in recognition of his services during the Civil War (64204).
- MILLER, LEWIS T.**, Brookland Station, D. C. (through Smithsonian Institution, National Zoological Park): Specimen of Holboell's grebe, *Colymbus holboelli*, from Maryland (64593).
- MILLIKEN, F. B.**, Dallas, Tex.: Collection of Kansas Meloidae (blister beetles), consisting of 108 adults, and 7 slides of triungulins and 28 slides of various insects, mostly immature stages, of reared Hemiptera (64460).
- MILLS, Prof. W. C.** (See under H. A. Buerhaus.)
- MILWAUKEE, PUBLIC MUSEUM OF THE CITY OF**, Milwaukee, Wis.: 2 pieces of the Colby, Clark County, Wisconsin, meteoric stone, weighing 1686 and 1956 grams (65076).
- MINER, LEO D.**, Chevy Chase, Md.: Yellow-billed cuckoo, *Coccyzus americanus*, from Maryland (64091).
- MINGUS, Dr. EVERETT**, Marshfield, Oreg.: Samples of carbonized wood from near the Cape Arago Light-house, Coos County, Oregon (63979).
- MITCHELL, Dr. J. D.**, Victoria, Tex. (through Bureau of Biological Survey, U. S. Department of Agriculture, Washington, D. C.): Box turtle, *Terrapene major*, from Texas (64308).
- MIYAJIMA, Dr. M.**, Tokyo, Japan: 11 mollusks, *Katayama nosophora* intermediate host of Japanese *Schistosomum* and food of glow worm *Luciola* (64045).
- MIZE, T. M.**, Scunthorpe, Lincoln, England: Textiles and other prehistoric objects from Chile, South America (55 specimens) (64509, loan).
- MOLBYDENUM MINES COMPANY, THE**, Denver, Col. (through Mr. F. L. Hess): Molybdite from mines in Chaffee County, Colorado (64717).
- MOORE, Dr. A. F.**, Calama, Chile: Plant from the vicinity of Calama, Chile (64370).
- MOORE, Dr. A. F.**, and L. H. ABBOT, Calama, Chile: 3 plants and 7 photographs (64835).

- MOORE, Commandant J. M., U. S. Coast Guard (See under Mrs. A. T. Eddy).
- MOORHEAD, Mrs. KATE UPSHUR, Washington, D. C.: A small worsted bag knit by the venerable Mrs. Alexander Hamilton for Miss Martha Curtis Williams, Arlington House (Mansion), Virginia, November 18, 1853 (63976, loan).
- MORE, Mrs. J. D., Houston, Tex.: 2 cacti from Texas (64159).
- MORGAN, ARTHUR E., Dayton, Ohio: The largest known complete American trilobite, *Isotelus brachycephalus* (type) from 6 miles northeast of Dayton, Ohio (64201).
- MORGAN, Miss MATTIE BETH, College of Industrial Arts, Denton, Tex.: 2 plants (64722).
- MORRIS, H. P., Richmond, Va.: 10 birds and 114 eggs from various localities (64228).
- MORRISS, F. E., Tampa, Fla.: 2 photographs showing respectively, Captain H. W. Lawton, U. S. Army, and his Company after their capture of Geronimo and his band; and Geronimo and his band after their capture in 1886 (63860).
- MOSIER, CHARLES A., Homestead, Fla.: 2 katydidids, 2 species (64362).
- MOSONYI, EMILIO, San Salvador, Central America: Jade ornament, 2 celts of black nephrite and a terra cotta, button-like ornament, all from San Salvador, Central America (64173).
- MOTTER, Dr. MURRAY GALT, Washington, D. C.: 6 official publications bearing on the history of the U. S. Pharmacopoeia (64908); records of the Board of Trustees of the U. S. Pharmacopoeial Convention of 1910 and Committee on Credentials; Stenographer's Report of the Proceedings of the U. S. Pharmacopoeial Convention of 1900 (65120).
- MUESCHEN, C. A., St. Vincent Home, Quincy, Ill.: 6 moths, 6 species, from Illinois (64341).
- MÜLLER, JUAN, Mexico; Mexico: 141 miscellaneous Diptera (64712).
- MULLER, ROBERTO, Mexico, Mexico: 26 Odonata including 21 species, and 12 miscellaneous Neuroptera (63925).
- MURPHY, H. C., jr., Greenwich, Conn. (through the Government Loan Organization, New York City): Painting by the donor entitled "The 27th Division Breaking the Hindenburg Line" (65128).
- MURPHY, ROBERT CUSHMAN (See under Brooklyn Museum, The).
- MUSEU PAULISTA (See under Sao Paulo, Brazil).
- MUSEUM - D'HISTOIRE NATURELLE, Paris, France: Specimen of cactus (64384, exchange).
- MUSEUM OF THE AMERICAN INDIAN, HEYE FOUNDATION, New York City: Plaster cast of a stone pipe found in a cemetery at Burr's Hill, Warren, Rhode Island, the original belonging to the Museum of the American Indian (64292); skeletal material collected by Mr. F. W. Hodge during the summer of 1919 at Zuni, New Mexico (ancient pueblo of Hawikuh) (64296).
- MYER, Miss VIOLA WALDEN (through the American Security and Trust Company, executor, Washington, D. C.): An oil portrait by Mr. George P. A. Healy, of General Albert J. Myer, First Chief Signal Officer of the United States Army and founder of the United States Weather Bureau (64445, bequest).
- MYER, W. E., Tennessee Academy of Science, Carthage, Tenn.: Crania and other bones from Castalian Springs, Tennessee, and crania from Wayne and Smith Counties, Kentucky (64107); skeletal material from mounds and Indian graves in north central Tennessee, including skulls from Kentucky (64108).
- MYERS, CHARLES A., jr., New York City (through Dodge and Olcott Co.): Model of composite type still (64817).
- MYERS, GEORGE HEWITT, Washington, D. C.: 2 Attu grass baskets (63877, loan).

NATIONAL ACADEMY OF DESIGN, New York City. (See under Ranger Fund, Henry Ward.)

NATIONAL AMERICAN WOMAN SUFFRAGE ASSOCIATION (through Mrs. Helen H. Gardener, Washington, D. C.): Portrait of Susan B. Anthony (1820-1906), personal relics of her and miscellaneous objects illustrating the history of the movement for woman suffrage in the United States, 1848-1919 (46 specimens) (64601).

NATIONAL RESEARCH COUNCIL, Washington, D. C.: A sample of celadonite from France, and 2 specimens of cannel coal, mined by the Riverside Coal Mining Company, Pearson, Kentucky (63962, transfer).

NATIONAL WAR GARDEN COMMISSION, Washington, D. C. (through the Commission of Presentation, Myron T. Merrick, Chairman, John Hays Hammond, and John Greer Hibben): Bronze medal symbolizing the war service of the home gardens of America, 1914-1919 (2 copies) (63819, transfer).

NAVY DEPARTMENT:

Bureau of Ordnance: Fragment of one of the high explosive projectiles fired by a German submarine at an American tug-boat off the coast of Massachusetts, July 21, 1918 (64143).

Bureau of Steam Engineering: Aircraft radio apparatus of the type used in the United States Navy during the War with Germany, 1917-1918 (63901).

NEHRLING, H., Gotha, Fla.: 4 plants from Florida (63807).

NEIRA, J. F., Arequipa, Peru: 2 photographs of gold ornaments in the collection of the donor, of Inca and pre-Inca origin from the region of Tiahuanacu, Peru (64385).

NEW JERSEY DEPARTMENT OF AGRICULTURE, Trenton, N. J.: 8 vials of named alcoholic material (64467).

NEWTON, MAHLON W., Philadelphia, Pa.: Lobster, *Homarus americanus*, caught 8 miles off the coast of Atlantic City, which weighed when alive 34 pounds (64510).

NEWTON, PARKER, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Victory Fleet in the North River" (65164).

NEW YORK BOTANICAL GARDEN, Bronx Park, New York City (through Dr. N. L. Britton, Director): 1781 plants collected in Colombia by Dr. F. W. Pennell (63835); plant from the West Indies, also 5 ferns (63858, 65868); 292 algae, chiefly marine specimens, from the West Indies (65080); 66 plants from the Virgin Islands (63872); 22 plants from Colombia and the western United States; also 29 mosses, chiefly from the western United States (63980, 64575); 15 plants, chiefly Cactaceae (64073); 79 mosses, chiefly from New York State (64079); 5 plants from Florida (64661); 86 plants from the United States (64904); plant from Trinidad (64936); plant, *Salvinia*, from Trinidad (64957); 12 plants and 3 photographs (65031). Exchange.

NEW YORK STATE COLLEGE OF FORESTRY, SYRACUSE UNIVERSITY, Syracuse, N. Y. (through Prof. H. P. Brown): 12 shrubs from New York State (64468, exchange); 22 specimens of forest products showing the close utilization of wood waste, mounted on a panel (64766).

NEW YORK STATE MUSEUM, Albany, N. Y. (through Dr. Homer D. House): Fern from New York (64087, exchange); 100 plants from New York (64694, exchange); 269 plants from Palestine (64790).

NEW ZEALAND, GOVERNMENT OF (through Department of State, and War Department, Historical Branch of the General Staff): Uniform, hat, shoes, puttees, hat bands, and cloth and metal insignia, of the type worn by the New Zealand Expeditionary Forces during the European War, 1914-1918 (161 specimens) (64118).

- NICHOLS, HOBART, Bronxville, N. Y. (through the Government Loan Organization): Oil painting by the donor entitled "Eddie Rickenbacker's 25th" (64350).
- NICHOLSON, G. J. GUTHRIE (See under Lt. Col. Duncan Elliot).
- NIEMETZ, V., Care Vitem Vojtisek, Krejci, Yicin, Czechoslovakia: Russian paper currency of the type used during the World War, 1914-1918 (16 specimens) (64866).
- NORMAN, J. H., Bradentown, Fla.: Specimen of basket-fish, *Astrophytum muricatum*, collected from off Cortez, Florida (64012).
- NORTH CAROLINA, STATE DEPARTMENT OF AGRICULTURE, DIVISION OF ENTOMOLOGY, Raleigh, N. C. (through Mr. C. S. Brimley): 9 flies (64562); 7 flies, tachinids (64711).
- NORTH DAKOTA AGRICULTURAL COLLEGE, Agricultural College, N. Dak.: 14 plants from North Dakota (64379, 64486, 64506).
- NORTON, MISS GERTRUDE, Salt Lake City, Utah: 14 ferns from Utah and Montana (64289).
- NORTON, HARVARD N., Royal Oak, Mich.: Salamander, *Ambystoma jeffersonianum*, from near Pontiac, Michigan (64123).
- OAKLEY, THORNTON, Philadelphia, Pa. (through the Government Loan Organization, New York City): 2 paintings by the donor entitled "Launching of the Quistconck" and "The Cannon Maker" (65127).
- OHIO STATE UNIVERSITY, Department of Zoology and Entomology, Columbus, Ohio (through C. H. Kennedy): Dragonfly, *Philosina buchi*, from the Province of Fokien, China, 1917 (64849).
- ORCUTT, C. R., La Jolla, Calif.: 6 mollusks, *Haliotis cracherodii*, variety from San Nicolas Island, California (64475); 7 plants (64844, 65032).
- OREGON AGRICULTURAL COLLEGE, Corvallis, Oreg.: 5 plants from Oregon (63793, 63802). Exchange.
- O'REILLY, M. M. (See under Hon. R. W. McLachlan).
- ORIANI, THOMAS, Washington, D. C. Silver medal commemorating the laying of the corner stone of the Capitol, 1793 (64644, loan).
- OSHIMA, Prof. M. (See under Institute of Science, Government of Formosa).
- OVER, FRANK, jr., Charles Town, W. Va.: Milk snake from Charles Town, W. Virginia (65090).
- OWEN, Prof. E. T., Madison, Wisc.: 800 moths from California and Arizona (65097).
- PACIFIC MINERALS AND CHEMICAL COMPANY, Glendale, Calif.: 2 specimens of talc (64921).
- PADDOCK, WILLARD D., New York City (through the Government Loan Organization, New York City): A plaque in plaster by the donor entitled "They Shall Not Pass" (64349).
- PAIGE, SIDNEY, U. S. Geological Survey, Washington, D. C.: (through Dr. C. Wythe Cooke): 22 invertebrate fossils from Colombia, South America (63936).
- PALERMO, ANTONIO, Washington, D. C.: Cleaver-like short weapon, from North Africa (64786).
- PALMER, WILLIAM, U. S. National Museum: Crab from Chesapeake Beach, Maryland, and 8 cling fishes, *Gobiesox?* (64082); 2 mud turtles, *Kinosternon subrubrum*, from South Chesapeake Beach, Maryland, (64274); Pine mouse, king-snake, *Lampropeltis rhombomaculatus*, and a starling, *Sturnus vulgaris*, all from Virginia (64163, 64605, 64794); young barn owl, *Tyto pratincola*, from Washington, D. C. (64624).
- PARISH, S. B., San Bernardino, Calif.: Plant, *Lessingia lemmonii*, from California (64382).
- PARK, J. A. BAGDAD, ARIZ.: Specimen of moth larva of the family called bag worm (64948).
- PARKE, DAVIS AND COMPANY, Detroit Mich.: 116 pharmaceutical preparations; 6 medicinal animal products, and 1 photograph (64909).

- PARKER, JOHN F., New York City: An oil painting by the donor entitled "The Retreat of the Serbian Army" (64374). (See also under Junior Officers Club).
- PARRISH CLARA WEAVER (Mrs. W. P. P.), New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Deportation of the Belgians" (65161).
- PARSHALL, DOUGLAS EWELL, Santa Barbara, Calif. (through the Government Loan Organization, New York City): Painting by the donor entitled "British Infantry at Arras Cathedral" (65126).
- PARTINGTON, Mrs. F. E. (through Mrs. Julian-James): Apron of brown linen made and embroidered by a little girl in New York about 1830 (65065, loan).
- PATCHETT, S. C., Gatun, Canal Zone: 90 Panama butterflies (64209).
- PATTERSON, M. L., Manager, Thabawleik Mines, Mergui, Burma: Specimens of tungsten tin, magnetite, and bismuth from Burma (64930).
- PAULSEN, DR. OVE (See under Copenhagen, Denmark, Universitetets Botaniske Museum).
- PAXTON, E. M., Stroudsburg, Pa.: Crêpe handkerchief captured from a Spanish officer after the battle of San Juan Hill, July 1-3, 1898 (64035).
- PEARSE, DR. A. S., University of Wisconsin, Madison, Wisc.: 36 microscopic slide mounts of parasites of fishes from Lake Valencia, Venezuela, and 610 crustaceans collected and reported on by the donor (64536, 64621).
- PEARY, Mrs. ROBERT E., Washington, D. C.: United States flag flown at the North Pole by Rear Admiral Robert E. Peary, U. S. Navy, and decorations of the Legion of Honor and gold medal of Kane Lodge, F. A. A. M., owned by him (64860, loan).
- PENDLETON, GEORGE M., Sisson, Calif.: 2 plants, Hepaticae, from California (64474).
- PENNSYLVANIA, AGRICULTURAL DEPARTMENT OF, Bureau of Plant Industry, Harrisburg, Pa.: 4 mollusks, *Subulina octona*, on *Dracaena waltii*, taken from a greenhouse at Norwood, Pennsylvania (64748).
- PEREZ, GILBERT S., Lucena, Tayabas, P. I.: 6 Philippine land shells representing 2 species (64739); human skull and 5 ethnological objects found in a cave on Bohol Island, Philippine Islands (65055, exchange).
- PERKINS, JOHN U., Washington, D. C.: A photogravure "On Nootka Sound" by John Andrew and Son after the copyrighted photograph by Edward S. Curtis (64888).
- PETERS, DR. LINDSAY, Columbia, S. C.: Skull of a Bolivian Indian ("Aymara" type) showing extreme deformation (64259).
- PETERSEN, H. P., Washington, D. C.: 5 staurolite crystals of "fairy stones" (63846); seed pearls from Panama (64714).
- PHELPS, Miss HELEN WATSON, New York City (through the Government Loan Organization, New York City): Portrait, by the donor, of Dr. Henry Van Dyke (65125).
- PHILIP, Hon. HOFFMAN, Legation of the United States of America, Bogota, Colombia (through Hon. Alvey A. Adey, Department of State, Washington, D. C.): Terra cotta figure (part of a large vessel), excavated some years ago from a grave of the Chibcha Indians, near the town of Cibaquira, north of Bogota (64297).
- PHILIPPINE ISLANDS, GOVERNMENT OF, Bureau of Science, Manila, P. I.: 4 bats from the Philippine Islands (64456).
- PHILLIPS ACADEMY, Andover, Mass. (through Dr. O. P. Hay): A collection of fossil invertebrates from Cavetown, Maryland (64546).

- PHILLIPS, DUNCAN, Washington, D. C.: An oil painting by E. W. Redfield entitled "The Island" (65074).
- PHILLIPS, E. PERCY (See under South Africa, Union of, Pretoria).
- PILLING, W. S., Philadelphia, Pa.: Cultivated fern, *Polystichum standishi*, from Pennsylvania (64309).
- PIPER, Prof. C. V., U. S. Department of Agriculture, Washington, D. C.: 45 plants, chiefly fragments of type material of species of *Allocarya* (63803); plant, *Sclaginella*, an alga, and a specimen of hepatica, all from Washington (63952, 64270, 64905); fern, *Dryopteris filix-mas*, from British Columbia (64493).
- PITTIER, H., Caracas, Venezuela: Snake from Caracas, Venezuela, shells (mollusks) and insects; 6 land shells, 3 species, from Guaremal, Venezuela, and 324 specimens of Panama and Venezuela woods collected by the donor (63928, 64112, 65071).
(See also under Otón Jiménez).
- POMEROY, A. W. J., London, England: Zygoptera, 13 Libellulinae from Nigeria, West Africa, and 6 Libellulinae from Rufigi River, East Africa (63927).
- POMONA COLLEGE, Claremont, Calif.: (through Dr. William A. Hilton): 122 crustaceans, 38 species, from California (64187).
- PONIATOWSKI, Dr. STANISLAW, Warsaw, Poland: Collection of ethnological material principally charms and fetiches from the Gold Tribes, Eastern Siberia (63969).
- POOLE, ARTHUR J., U. S. National Museum: 50 freshwater gastropod mollusks collected in the Wolf River, Shawano, Wisconsin, and 7 freshwater mollusks from Mercer, Wisconsin (64057).
- POST OFFICE DEPARTMENT: 9 sets of specimen stamps, etc., in triplicate (2034 specimens) received from the International Bureau of the POST OFFICE DEPARTMENT—Con. Universal Postal Union, Berne, Switzerland (63882, 64110, 64167, 64442, 64600, 64665, 64781, 64814, 64932); 3 specimens of the 3 cent United States window envelope printed in red ink on white paper (63889); postage stamps and post cards issued by the Japanese Government in commemoration of the close of the European War, 1919 (12 specimens) (63898); Red Cross and War Orphan stamps issued by the French Government during the European War, 1914–1918 (24 specimens) (63900); a three pfennig Hanover reprint stamp (63902); United States postage stamps as follows: surcharged "Shanghai, China," and issued, 1919. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 12, 15, 20, 30, 50 cents and \$1., three specimens of each (48 specimens) (63958); 2 specimens each of the 7½, 10 and 15 centimes postage stamps issued by the Swiss Government in commemoration of the close of the European War, 1919 (6 specimens) (63991); 3 sheets each of 1, 2, and 3 cent ordinary current U. S. postage stamps bearing the compound perforation 11 by 10, 170 subjects to each sheet (1530 specimens) (64151); 6 sheets of one hundred specimen stamps each, received by the Post Office Department from the Estonian postal authorities (600 specimens) (64295); United States three-cent stamped envelopes overprinted two-cent (87 specimens) (64788).
- POTTHAST, EDWARD H., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The Argonne" (65175):
- POWERS - WEIGHTMAN - ROSENGARTEN COMPANY, Philadelphia, Pa.: 16 specimens of quinine products and 59 specimens of inorganic chemicals (64562, 64654).
- PRETZ, HAROLD W., Allentown, Pa.: Cultivated fern (64258).

- PRICE, Miss SYDNEY, Baltimore, Md. (through Mrs. Julian-James, and Mrs. R. G. Hoes): An infant's dress of linen, lace, and hand embroidery, and 3 infant's caps of linen, lace, and embroidery (64330); child's wearing apparel and an embroidered linen night-cap (64787). Loan.
- PRINCESS TEXTILE MILLS, INCORPORATED, New York City: 8 samples of Angora knitted fabrics (65109).
- PSOTA, FRANK, San Diego, Calif.: 60 beetles (64519).
- PUBLIC SCHOOL, Lake Bathurst, New South Wales, Australia; 2 sets of Moa leg bones and a lot of shell fragments, 1 lot of crop stones, and 11 rock specimens (63813, exchange).
- PURINGTON, C. W., Vladivostok, Siberia (through Mr. F. L. Hess). 3 mineral specimens from Siberia (64319).
- QUEENSLAND MUSEUM (See under Brisbane, Queensland, Australia).
- QUIGLEY, Dr. R. L., Washington, D. C.: Specimen of a pharmaceutical mortar made of lignum-vitae (63981).
- QUIN, Misses ALICE, ELIZA, and EMILY, Christiansted, St. Croix, Virgin Islands (through Dr. T. Wayland Vaughan): 21 specimens of Cretaceous fossil Rudistae from St. Croix (64145).
- R. & S. MOLYBDENUM COMPANY, Questa, N. Mex. (through Mr. F. L. Hess): A large specimen of molybdenum ore (64512).
- RAMALEY, Dr. FRANCIS (See under Colorado, University of).
- RANGER FUND, HENRY WARD (through the National Academy of Design, New York City): 2 oil paintings entitled "Grey Day" by W. Granville-Smith, N. A., and "Evening Tide, California" by William Ritschel, N. A. (64800).
- RARITAN COPPER WORKS, Perth Amboy, N. J. (through Mr. F. L. Hess). 3 specimens of selenium and 1 of tellurium (64266).
- RATHBUN, Dr. MARY J., U. S. National Museum: Land mollusk from Cedar Mountain, near Intervale, New Hampshire (64106).
- READ, Sir C. HERCULES (See under London, England, British Museum (Natural History)).
- READING, Miss ALICE M., Washington, D. C.: 2 bunches of artificial roses, a pine cone mat, a cotton mat, and a doll, made by Mrs. Alexander Hamilton, and 2 slippers worn by Miss Lucy Grymes (63878).
- REID, EARL D., U. S. National Museum: 8 mummichog, *Fundulus heteroclitus*; 3 sheepshead minnow, *Cyprinodon variegatus*, and 2 toadfish, *Opsanus tau*, collected at Chesapeake Beach, Md., August 9, 1919 (63990); 62 fishes, 21 shrimps, and 4 insect larvae (64017); 2 swell-toadfish, *Spheroides maculatus*, and 4 isopods with young (64081); cub shark, *Carcharhinus lamia*, and a head of a shark, *Hypoprion brevirostris*, collected in the markets at Washington, D. C., and 8 fishes, 7 collected from the Potomac River at Great Falls, and 1, *Tautoga onites*, from the market at Washington, D. C. (64113, 64970).
- REKO, Dr. BLAS P., Oaxaca, Mexico; 183+ specimens of plants from Mexico (63796, 63834, 64037, 64395, 64550): 16 plants (cacti) and seeds of *Euphorbia* and *Coussapoa* (64176).
- REYNE, A., Agricultural Experiment Station, Paramaribo, Dutch Guiana: 3 fragmentary shipworms (mollusks) from pilings in Surinam (63978); 3 shipworms, *Teredo* (*Neoteredo*) *reynae*, representing a new subgenus and new species from Paramaribo (64782).
- REYNOLDS, A. G., Gulfport, Fla.: 4 newts from Ozona, Florida (64954).
- RHODES, J. P., Winfield, W. Va.: Male beetle, *Dynastes tityus*, (63792).
- RICE, W. C., Center Lovell, Me. (through the Government Loan Organization, New York City): Painting by the donor entitled "The Night Raiders" (65124).

- RICHARDS, GEORGE M., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The Accolade" (65123).
- RICHARDSON, Mrs. CHARLES W., Washington, D. C.: Native drum from the interior of Haiti (63899); (through Mrs. Julian-James): 2 embroidered muslin caps and a willow cap basket of the early 19th century, and a blue gingham umbrella of the 18th century (64326, loan).
- RICHMOND, Dr. PAUL, U. S. Navy, Brooklyn, N. Y.: Archeological material from Santo Domingo, West Indies, and Virginia, U. S. A. (64464).
- RICKER, P. L. (See under P. W. Fatig).
- RIDGWAY, ROBERT, Olney, Ill.: 7 plants, *Carex*, from Illinois (64148).
- RIFE, CHARLES H., U. S. Naval Station, Guantanamo, Cuba: Specimens of plants from Cuba (63866, 64498, 64971).
- RIGGS, B. A., Kanab, Utah: Archeological objects found in a cave in Cottonwood Canyon, Kane County, Utah (8 specimens) (63814).
- RIKSMUSEETS, BOTANISKE AVDELNING, VETNESKAPSAKADEMIEN (See under Stockholm, Sweden).
- RITSCHER, WILLIAM, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The Surrender of the German Fleet" (65144).
- ROBERTSON, Dr. CHARLES, Carlinville, Ill.: 18 fossorial Hymenoptera, representing 14 species, 3 of which have been described as new (64154).
- ROBINSON, T. R., Terra Ceia, Fla.: 7 living plants, Cacti (64525).
- ROBINSON, Col. WIRT, U. S. Army, Military Academy, West Point, N. Y.: Hummingbird, *Aithya polytmus scitulus*, from Jamaica, new to the collections (63944).
- ROGERS, Major General H. L., Quartermaster General, U. S. Army, Washington, D. C.: German officer's field artillery periscope, and Luger automatic pistol with holster, cartridge clip and screw driver; also 4 photographs and 8 small fragments of the Zeppelin L-49 (17 specimens) (63986); a German message shell, complete, of the type used during the European War, 1914-1918 (64294); Uhlan helmet of the type used during the World War, 1914-1918 (65069). Loan.
- ROOT AND SIMPSON, Denver, Col. (through Mr. Charles W. Henderson). A specimen of cylindrite from Bolivia (64716).
- ROSE, Dr. J. N., U. S. National Museum: 8 plants from New Jersey (64418).
- ROSE, J. S., Liberty, Union County, Ind.: Fungus, *Hydnum erinaceum*, from Indiana (64388).
- ROSEN, CHARLES F., New Hope, Pa. (through the Government Loan Organization, New York City): Painting by the donor entitled "The Marines Attack" (65143).
- ROSEN, H. R. (See under Fayetteville, Ark., Agricultural Experiment Station).
- ROST, E. C., Alhambra, Calif.: Specimen of plant (flowers of *Echinocactus grusonii*, and 4 plants (64071, 64823, exchange); 3 cacti, *Opuntia*, from California (64361); plant, *Echinocactus cylindraceus* (64917).
- ROULAND, ORLANDO, New York City (through the Government Loan Organization, New York City): Portrait by the donor of a soldier in a wheel chair (64398).
- ROWLEE, Prof. W. W., Cornell University, Department of Botany, Ithaca, N. Y.: 78 plants, chiefly ferns and grasses, from Panama and Central America (64216); 216 plants from Central America (64778, exchange).
- ROWLETT, Mrs. S. C., Randolph, Va.: 3 plants collected in Virginia (64040).

- ROWZIE, Mrs. W. B., Washington, D. C.: 18 snakes and 1 fish collected partly by the donor in Rappahannock and Loudoun Counties, Virginia (63912).
- RUNGIUS, CARL, New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Bringing up the Guns" (65141).
- RUSSIAN GEOGRAPHICAL SOCIETY, EAST SIBERIAN SECTION OF, Irkutsk, Siberia: 5 photographs of an Urentkhaishi shaman and his wife (63970, exchange).
- RUTH, ALBERT, Polytechnic, Tex.; 98 plants from Texas (64487).
- RYDER, CHAUNCEY F., Wilton, N. H. (through the Government Loan Organization, New York City): Painting by the donor entitled "Chateau Thierry" (65172).
- SABINE, WILLIAM, Montreal, Quebec, Canada: A small lot of obsidian chips, flakes and arrowpoints, 3 clay heads, an obsidian core, and a clay spindlewhorl, collected by Mr. C. C. Kippen (64934).
- SANCHEZ, Dr. MARIO, Sr., Havana, Cuba: 109 Cuban mollusks (63871, 64066, 64923); mollusk, *Agriodesma* species, from Cuba (65018).
- SAN DIEGO NATURAL HISTORY SOCIETY, San Diego, Calif.: 12 crustaceans 3 species, from California (64340).
- SAO PAULO, Brazil, MUSEU PAULISTA (through Mr. Alfonso d'E. Taunay, Director): 2 echinoderms, 1 sipunculid worm, 1 marine annelid, 12 amphipod crustaceans, 8 isopod crustaceans, and 2 tanaid crustaceans from Brazil (64523).
- SAUNDERS, J. T. (See under California Polytechnic School).
- SAVAGE, M. F., New York City: Silver tablespoon made during the Colonial period by James Turner (64221); sacrificial knife for circumcision found on the site of the temple at Jerusalem (64234); 2 silver teaspoons made by James Turner about 1760 (64910).
- SCHAFFNER, Prof. JOHN H., Department of Botany, Ohio State University, Columbus, Ohio: 2 plants, *Equisetum*, from Kansas (64218).
- SCHALLER, Dr. W. T. (See under Rev. N. P. M. Corn).
- SCHIEFFELIN AND COMPANY, New York City: 6 official pharmaceutical preparations of cinchona products (64752).
- SCHLUTER, RICHARD V., New York City (through the Government Loan Organization, New York City): 4 paintings by the donor entitled "Victorious Return of our Battle Fleet," "Destroyer Going to the Rescue," "The Leviathan Returning with the 27th Division," and "Victims of the Submarine" (64344).
- SCHMID, EDWARD S., Washington, D. C.: 13 Tovi paroquets, *Broto-geris jugularis* and a weaver bird, *Poephila mirabilis* (63839, 63943, 63954); 4 Cuban parrots (64031, 64229, 64264, 64477); Amazon parrot, *Amazona panamensis* (64093); 2 eggs of macaw, *Ara ararauna* (64128); 2 Brazilian monkeys (64164); 4 paroquets, *Broto-geris virescens*, and 2 European goldfinch, *Carduelis carduelis* (64357, 64478, 64812); 25 birds (64702, 64726, 64955, 65047, 65053).
- SCHULZ, Miss ELLEN D., San Antonio, Tex.: 379 plants from Texas and Oklahoma (64185, 64485, 64549, 64689, 64962, 64967, 64343, 65010), 9 plants, (3 cacti) (64913, 65034).
- SCHWARTZ, ANDREW T., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "The First American Shell" (65168).
- SCHWARZ, Dr. E. A., U. S. Department of Agriculture, Washington, D. C.: 7 specimens of Diptera (63908); collection of approximately 5770 miscellaneous insects (64306).
- SCIDMORE, Miss ELIZA RUHAMAH, Care, American Consulate General, Yokohama, Japan: 35 favors given at Japanese diplomatic dinners, 3 Nabeshima plates and a bronze jar, Japan (65017, loan).

- SCOLLIICK, J. W., U. S. National Museum: 6 ironstone concretions simulating fossils (63886).
- SEIGLE, W. I., President, Norton Laboratories, New York City (through Mr. F. L. Hess): 3 castings and 2 rods of metallic magnesium (64277).
- SENATE OF THE UNITED STATES, COMMITTEE ON COMMERCE (through Hon. W. L. Jones, Chairman): Model of steam freighter "Shohokin" built at Hog Island, 1919 (64928, transfer).
- SHANNON, EARL V., U. S. National Museum: 2 specimens of gedrite from Chesterfield, Massachusetts, described by the donor (64217); 3 specimens of sillimanite, variety bucholzite from Russell, Massachusetts, (64278); 150 specimens of rocks and minerals from various localities in Connecticut (64290).
- SHEAR, C. L., Bureau of Plant Industry, U. S. Department of Agriculture, Washington, D. C.: Plant from Virginia (63836).
- SHELTON, Raleigh T., Passapatanzy, Va. (through L. W. Ellis, Cherrydale, Virginia): A coral from the Miocene rocks of Virginia (64061).
- SHEPHERD COMPANY, THEODOSIA B., Ventura, Calif.: 14 cacti (64074, exchange).
- SHEPHERD, WARREN J., Los Angeles, Calif.: Photograph of the donor as a recipient of the Army Medal of Honor for distinguished gallantry in action at El Caney, Cuba, July 1, 1898 (63964).
- SHERFF, EARL E., Chicago, Ill.: 4 plants from Illinois (64115).
- SHIDELER, Prof. W. H., Miami University, Oxford, Ohio: 60 fossil ostracods and bryozoans from the Richmond group of Ohio (64979, exchange).
- SHIPPY, N. D., Kingman, Ariz. Specimens of cyanite from near Ogilby, California (64893).
- SHREVE, Dr. FORREST, Desert Laboratory, Tucson, Ariz.: Plant, *Mammillaria* (64894).
- SHUFELDT, Dr. R. W., U. S. Army (retired), Washington, D. C.: Lizard, *Sceloporus undulatus*, and 3 eggs of a spotted turtle, *Chelopus guttatus*; also a young wood-tortoise, *Clemmys insculpta*, all from the District of Columbia (63941, 64373); 53 (males and females) of Fall webworm moths, *Hyphantria textor* (63955); 10 specimens of *Papilio turnus* and 2 specimens of *P. troilus* (64038); spider from Florida (64455); skeleton of the monkey-eating eagle, *Pithecopaga jefferyi*, from the Philippines (64809); approximately 35 insects from the vicinity of Washington, D. C. (65056). (See also under Capt S. A. White).
- SHUFELDT, Mrs. R. W., Washington, D. C.: Specimen of lizard, *Plestiodon fasciatus*, from the District of Columbia (63940).
- SHUMAN, R. D., Philadelphia, Pa.: Commemorative badge of the Logan, Pennsylvania, Fourth of July Celebration, 1919 (64553).
- SKEELS, H. C., U. S. Department of Agriculture, Washington, D. C.: An orchid from Washington, D. C. (63799).
- SKINNER, HENRY, Academy of Natural Sciences, Philadelphia, Pa.: 50 butterflies (65098).
- SLADEN, Dr. F. W. L., Ottawa, Canada: 5 wasps (64581, exchange).
- SLATER, Mrs. H. D., Lorton, Va.: Plant from Virginia (64175).
- SMITH, Dr. HUGH M., Bureau of Fisheries, Washington, D. C.: 15 sponges, 10 flat-worms, 1 freshwater oligochaete, 30 leeches and leech capsules, 10 cladocera, 4 amphipods, 40 mollusks, 5 insects, 3 batrachians, 1 mammal and 5 plants, collected by the donor in Yellowstone National Park during the summer of 1919 (64196).
- SMITH, Rev. MILLARD H., Young Harris, Ga.: Collection of arrowpoints, etc., and fragments of pottery (63897).

SMITH, N. H., New London, Conn.: Letter written by Lieutenant Nathaniel Fanning, U. S. Navy, to his wife Elizabeth Fanning, August 8, 1804 (64434).

SMITHSONIAN INSTITUTION:

Bronze replica of the medal presented by Ambrose Swasey to the Rowfant Club, Cleveland, Ohio, in commemoration of the services of John Hay (64161); "Classical Bouquet" (with carved wood cover), being a Greek album containing dried flowers from Hellas and verses from the ancient authors, prepared by Miss Elizabeth B. Contaxaki for the Paris Exposition of 1855 and presented by her, through Mr. Charles S. Spence and Hon. Lewis Cass, Secretary of State, to the Smithsonian Institution (64489); bronze medal commemorating, 1920, the fortieth anniversary of the founding of the Warner and Swasey Company, Cleveland, Ohio (65052); 7 prints (65094).

Smithsonian African Expedition under the direction of Edmund Heller in conjunction with the Universal Film Manufacturing Company: 113 mammals, 126 birds, 11 reptiles, 2 insects, and 16 ethnological specimens collected in Africa (65030).

Bureau of American Ethnology: Archeological objects collected in Cottonwood Canyon, Kane County, Utah, by Mr. Neil M. Judd during the spring of 1919 (257 objects) (63841); 748 archeological objects and skeletal remains collected for the Bureau by Mr. Gerard Fowke from Miller's Cave, Missouri, during the spring of 1919 (64150); archeological collection, including human bones, from Sell's and Bell's caves, Pulaski County, Missouri, also forwarded by Mr. Fowke (64198); archeological

SMITHSONIAN INSTITUTION—
Continued.

material from Texas, gathered from the surface by Dr. J. Walter Fewkes and Prof. J. E. Pearce during the autumn of 1919 (165 specimens) (64248); sculptured stones of Huastec culture presented to the Bureau by Mr. John M. Muir of Tampico, Mexico (5 specimens) (64249); 3 fine hardwood bows and 3 ceremonial clubs from British Guiana, also a blanket of the Cowichan Indians (Salish), Northwest Coast (64327); collection of archeological and ethnological objects and skeletal material obtained in Arizona during the spring of 1919 by Dr. Walter Hough (64603); collection of archeological objects including 2 human skulls, made by Dr. J. Walter Fewkes at Square Tower House and contiguous ruins on the Mesa Verde National Park, Colorado, in cooperation with the National Park Service of the Interior Department, in 1919 (214 specimens) (64646); archeological objects (446 specimens) and skeletal material collected by Mr. J. A. Jeancon in an ancient ruin near Abiquiu, New Mexico, for Mr. Otto T. Mallery during the summer of 1919, and presented to the Bureau of American Ethnology by Mr. Mallery (64885). *National Museum, collected by members of the staffs:* Bartsch, Paul, 2 landshells, 2 species, from Cupid's Bower Island, Maryland (63854). Bassler, R. S.: 12 large exhibition slabs, 3 containing fossil plants, and 500 invertebrate fossils from the Ordovician rocks of Indiana (63856). Boone, Miss Pearl L.: 17 landshells, 4 species, from Alexandria, Virginia (63853): Foshag, William F.: A small collection of minerals from the Tilly Foster Mine, Brewster,

SMITHSONIAN INSTITUTION —
Continued.

New York (64377). Godbold, Leonard L.: 9 lizards, 1 terrapin, 1 snake, 2 frogs, 1 snapping turtle, turtle shell, and a small vial of isopods (64245). Marshall, William B. and H. C. Raven: About 100 land and fresh water mollusks, 12 species, from the vicinity of Chain Bridge, D. C. (63855). Marshall, William B., N. C. Wyckoff, C. M. Hoy, and A. J. Poole: About 700 land and freshwater mollusks from the District of Columbia and vicinity (63852). Maxon, William R., and Ellsworth P. Killip: 3000 plants from Jamaica; also specimens of woods, birds, insects, reptiles and bats (64906). Standley, Paul C.; 4200 plants from Glacier National Park, Montana (64075); Walcott, Charles D.; About 1000 land and freshwater shells, 7 species, collected by Nathaniel Wyckoff at Banff, Alberta, Canada; skin and skull of a mountain goat, skull of a coyote, skull of a porcupine, and skulls of 2 martens, all from Alberta, Canada (64144, 64165).

National Museum, obtained by purchase: 2 enlarged photographs of Knight's restorations of Brontotherium and Tylosaurus, and a model restoration of mastodon (64470); 2 bronze replicas each of the following commemorative medals issued by the American Numismatic Society: International Celebration of Independence Day 1918, the Treaty of Peace with Germany, 1919, and the visit of the Prince of Wales to the United States, 1919 (64016, 64490); 2 bronze replicas of the medal by J. P. Legastelois commemorating the services of General John J. Pershing during the war with Germany (64237); pair of engraver's calipers (64050); 100

SMITHSONIAN INSTITUTION —
Continued.

plants collected in Mexico by Dr. C. A. Purpas (64568); a 3320 gram piece of meteoric iron (64530); medicine man's head-dress of bear claws and quills, Nass River Indians, British Columbia (64352); 50 North American algae (Fascicle XLVI of the Phycotheca Boreali Americana) (64271); a lot of chipped rhyolite and quartzite implements found on the farm of Joseph Collins, near Tennallytown, D. C. (64658); foreign postage stamps issued during the World War, 1914-1919 (1174 specimens) (63818, 63984, 64404, 64405, 64406, 64660, 65008); a specimen of fossil wood from Kentucky (64339); 300 plants from South Carolina (64615); 329 plants from Uganda (64516, 64541, 64667); 325 plants from Tuolumne County, California (64255); print entitled "Scrap of Paper," showing a translation and facsimile of signatures from the original treaty of 1831 guaranteeing the independence and neutrality of Belgium, the abrogation of which by Germany resulted in the entry of Great Britain into the World War, 1914 (64457); 2 specimens of minerals, artinite and demantoid garnet (64642); 11 eggs from the Pribilof Islands (64877); 360 plants, chiefly from California (64635); 25 plants (65068); 11 Kinderhook fossils (64566); approximately 100 insects from Mexico (65061); carved stone zemé found in a cave near Moca, Porto Rico (64197); 574 Argentine plants (from Gobernacion de Formosa) (64321); 164 plants from the Andes of Peru (64614); a collection of calcareous concretions (64659); 8 plaster busts of early man (64492); a collection compris-

SMITHSONIAN INSTITUTION —
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ing 50 specimens of minerals (64192); 25 Devonian fossils from western New York (63885); 20 Devonian fossils (64203); 241 plants from north-western Maine (65040); 120 plants from Alaska (64633); 2500 pinned flies (64281); silver and bronze commemorative medals and military decorations of Belgium, France, Great Britain, Holland, Italy, Montenegro, Roumania, Serbia, and Switzerland, issued during the World War, 1914-1918 (93 specimens) (63957); silver and bronze commemorative medals and military decorations of Belgium, France, Great Britain, Greece, Holland, Italy, Montenegro, Roumania, Russia, Serbia, and Switzerland, issued during the World War, 1914-1918 (45 specimens) (64160); British military medal and British and French commemorative medals issued during the World War, 1914-1918 (6 specimens) (64335); decoration of the Order of Military Virtue of Roumania, and Military Medal of Montenegro (64476); bronze silver medal for the Commission for Relief in Belgium issued during the World War, 1914-1918 (64878); Nubian ceremonial dress (65089); skin of a bear, *Ursus emmonsii*, from Revelstoke, British Columbia (64618).

National Museum, made in Anthropological Laboratory: Plaster cast of a one-armed bannerstone of banded slate from Ohio, original the property of Mr. Norman E. Chance, Tacoma, Washington (64231); plaster cast of a terra cotta head from Lower Mexico or Yucatan original the property of Robert W. Lull, Newburyport, Massachusetts (64232); plaster cast of a curved bannerstone of banded

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slate from Illinois, original the property of Mr. G. Truman Chase, Jackson, Illinois (64238); plaster casts of 32 Oriental seals, made from originals which are the property of Mrs. Talcott Williams (3 negative and 3 positive impressions of each) (64328); plaster casts (3 copies) of a "magic" stone tube, the original of which is in the possession of Mr. J. E. Morre, Princess Anne, Maryland, and was found at Drummonds Lake, Parksley, Virginia (64367); 10 plaster casts of trephined Peruvian skulls, the originals of which are Nos. 1, 2, 4, 5, 9, 10, 11, 12, 18, 19 of the Manual Antonio Muniz Collection, now the property of the National Museum (64392); plaster cast in duplicate of a small stone image from Panama lent to the Museum by the Hon. Anthony J. Griffin of New York City for copying (64459); plaster cast, in duplicate, of a carved soapstone "wolf" pipe found in Tennessee near the Kentucky line in 1849 and lent to the National Museum for copying by Mr. L. A. Kiefer, of Indianapolis, Indiana (64469); plaster cast, in duplicate, of a stone saw or scraper found in a cliff-dwelling on Oack Creek, White Mountain Apache Reservation, Arizona (64783); plaster cast of the bust of Benjamin Franklin by Guiseppe Ceracchi (with pedestal) (65093).

National Museum, made in the Laboratory of the Division of Textiles: Model of oil of peppermint stills, showing condensers and receivers (64898).

National Zoological Park: Skin and skull of a tapir, *Tapirus terrestris* (63995); skin and skull of a deer, *Odocoileus* (63996); skin, skeleton and head

SMITHSONIAN INSTITUTION —
Continued.

of a wombat, *Phascodomys mitchelli* (64129); Peruvian guinea pig, and a young Siberian tiger (64172); snake, *Abastor erythrogrammus* (64241); skeleton of a bear, *Ursus thibetanus* (64497); gila monster, *Heterodermus suspectum* (64529); skull, skin and skeleton of a hyena, *Hyæna brunnea*; monkey, *Lasiopyga mona* (alcoholic), and skin and skull of a zebra, *Equus grevyi* (64543); 12 specimens of birds (64741); water rat, *Myocastor copysus*, and a South American cat, *Felis tigrina*, from Brazil (64757); ocelot, monkey, Patagonian cavy and Central American paca (64867); South American monkey, *Cacajao melanocephalus* (65015); diamond python from Australia (65037).

(See also under Lewis T. Miller).

SMITHSONIAN INSTITUTION AND DEPARTMENT OF INTERIOR: 421 archeological objects and the skeleton of a child collected by Mr. Neil M. Judd during the spring of 1917 in connection with the preservation and repair of Betatakin ruin, Navaho National Monument, Arizona (64586).

SNYDER, MRS. ELLISON VAN LOON, Santa Barbara, Calif. (through Dr. W. H. Dall): Mollusk, *Conus californicus*, dark mutation, from La Jolla, California (64316).

SNYDER, T. E., U. S. Department of Agriculture, Washington, D. C.: 7 species of Odonata, including 1 male and 1 female of *Anadlongipes* (63934).

SOLIS, Dr. OCTAVIO, Mexico City, Mexico: 20 plants (64731).

SOUTH AFRICA, UNION OF, DEPARTMENT OF AGRICULTURE, PRETORIA (through Mr. E. Percy Phillips): 93 plants from South Africa (64668, exchange).

SOUTHERN BIOLOGICAL SUPPLY COMPANY, INCORPORATED, THE, New Orleans, La. (through Percy Viosca, jr.): 9 sea anemones, presumably from off Louisiana (64735).

SOUTHERN PINE ASSOCIATION, New Orleans, La.: Specimen pieces of southern yellow pine lumber showing four of its uses (64956); 20 photographs showing the steps in southern pine lumbering operations (65002).

SPALDING, Dr. JAMES A., Portland, Me.: Copy of the Life of Dr. Lyman Spalding, the Originator of the United States Pharmacopoeia (64682).

SPENCE, GEORGE, Pine Grove, Monton, Lancashire, England (through Mr. John B. Henderson): Mollusk (cotype) of *Brachypodella nidicolata*, from limestone cliffs, Venezuela (63904).

SPENGLER, Major J. H., U. S. Army, Quartermaster's Corps, Washington, D. C.: Cap and pistol holster worn by Captain Commandant Fivé, Medical Service, Belgian Army, who was captured by the Germans at Brussels, 1914 (64927).

SPIER, GEORGE W., Chevy Chase, Md.: Gold mandolin watch, early 19th century (64978); an English watch, size 16, and a framed panel showing parts of a Waltham watch, Riverside movement (65075).

SPRINGER, Hon. FRANK, East Las Vegas, N. Mex.: Rough garnets and peridot from the Navaho Reservation, Arizona (63938).

SQUIBB AND SONS, E. R., New York City: 51 specimens of inorganic chemicals and 10 specimens of medicinal animal products (64763).

STAHEL, Dr. GEROLD, Director of Agricultural Experiment Station, Department van den Landbouw, Paramaribo, Surinam: 8 plants (64730, 64973).

STAHR, F. C., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Go to Hell" Whittelsey and the Lost Battalion" (65142).

STANDARD OIL COMPANY OF LOUISIANA, Dr. R. Weller, President, Baton Rouge, La. (through Prof. W. H. Gates and Dr. O. P. Hay): Fossil tooth of a horse, *Equus complicatus*, and 4 pieces of a mastodon tooth (64742).

STANLEY, Paul C., U. S. National Museum: 200 plants from Florida (64466).

STARR, Douglas N., Washington, D. C.: Gold half-eagle, 1795, and silver half-dollar, 1794, of the United States; silver sixpence, 1652, of Massachusetts; silver five marks, 1876, silver five marks, 1888 and silver two marks, 1888 of Germany (64101, loan); a United States five dollar gold piece issued in 1795, a Spanish silver one real piece issued in 1768, and a German silver three mark piece issued in 1914 (64423); United States coins: twenty dollar gold piece, Saint Gaudens design, 1907; five dollar gold piece, 1800; five dollar gold piece, 1808, and a half dime, silver, 1854, with arrow points at date (64848, loan); German coins consisting of one mark, silver, 1910, and a half mark, silver, 1909 (64851).

STATE, DEPARTMENT OF:

(See under Norman F. Allman, Argentan (Orne), France; Charles E. Asbury, Australia, Government of; Bermuda, Government of; British Government; Branko Dechkovitch; Edwin D. Kizer; Marlborough, The Duchess of; New Zealand, Government of).

STEPHENS, J. E., Rumford Falls, Me.: 2 political campaign buttons worn by the donor during Garfield and Arthur parades in 1880 (64770).

STERNBERG, Brigadier General GEORGE M., U. S. Army (through Mrs. Sternberg): 5 stone implements, 3 pottery vases, and a shell spoon found in a mound in Florida, opened by Gen. Sternberg; also a small collection of fossil vertebrate remains from Washtucna Lake, Washington (65011).

STEVENS, Miss ELIZABETH S. (through Josiah E. Fernald, executor, Concord, N. H.): Collection of lamps, pewter, metal work, fans, archeological material, etc. (64443, bequest).

STEWART, CHARLES W., Washington, D. C.: Plaster face mask of Charles W. Stewart by Jerome Conner, photograph of George Bancroft by Brady, and paintings of the U. S. S. *Bonhomme Richard*, the U. S. S. *Constitution*, and the Confederate ram *Albemarle* (5 specimens) (63963).

STEWART, R. R. Gordon College, Rawalpindi, India (through Miss Katharine D. Kimball): 48 plants from India (64301); 95 ferns from British India (64336).

STEWART, T. DALE, Delta, Pa., and EDMUND BLAINEY (through Mr. John L. Baer): An argillite blade, one of a cache of 14 found by the donors on the east bank of the Susquehanna River, at Peach Bottom, Pennsylvania (64645).

STILL, Dr. GEORGE A., American School of Osteopathy, Kirksville, Mo.: 77 books and pamphlets and 114 photographs bearing on the history of osteopathy (64919).

STOCKHOLM, SWEDEN, RIKSMUSEETS BOTANISKE AVDELNING VETENSKAPSAKADEMIEN (through Dr. Carl A. M. Lindman, Director): 500 South American plants (64994, exchange).

STONE, O. W., Carthage, Mo.: A specimen of crystallized sphalerite (63683).

- STREET, WILLIAM A., White Plains, N. Y.: Letter written by Gen. George Washington, June 17, 1783, framed with a lock of his hair and one of Mrs. Washington's hair (65006, loan).
- SUGAR EXPERIMENT STATION, Meringa near Cairns, Queensland, Australia (through Dr. J. F. Illingworth): 10 Australian two-winged flies (Diptera) (64797).
- SWALES, B. H., U. S. National Museum: 24 bird skins from Africa and East Indies, representing species new to the collection. (64303); 11 birds from various localities, comprising species new to the Museum (64452); 4 birds, *Pycnonotus*, from Formosa and Hainan (64625); 60 bird skins from various parts of the Old World representing species new to the collection (64810).
- SWINNEY, WALTER, Baltimore, Md.: Oil painting "The Holy Family" attributed to Raphael Urbinas (64647, loan).
- SYDNEY, NEW SOUTH WALES, THE AUSTRALIAN MUSEUM: 7 decapod crustaceans representing 2 species from New South Wales (65050).
- SYME, GEORGE, Petaluma, Calif.: 2 living plants and 3 photographs of a fern, *Adiantum* (63800).
- TABER, Judge E. L. J., Elko, Nev.: A pipe-bowl of imitation meerschaum (64672, loan).
- TAKAHASHI, RYOICHI, Imperial Forest Experiment Station, Meguro, Tokyo, Japan: Beetles, Hymenoptera, and a few miscellaneous orders of insects, approximately 150 specimens in all (64675).
- TAUNAY, ALFONSO D'E (See under Sao Paulo, Brazil, Museu Paulista).
- TAYLOR, FRANK H., Roma, Queensland, Australia: 11 specimens of *Spalangia grotiusi* (63895).
- TERRÓN, Prof. CARLOS CUESTA. (See under Prof. Francisco Contreras.)
- THAANUM, D., Hilo, Hawaii, H. I.: First installment of a collection of Hawaiian shells (64590); collection of Hawaiian marine shells, about 5000 specimens, together with a series of mounted radulae of the same (65088).
- THOMAS, EDGAR B., Cleveland, Ohio: A slate pendant with engraved designs found in northern Ohio (64431).
- THOMAS, R. K., Navajo, Ariz.: Miscellaneous geological specimens, 2 bone awls, and seeds from the Bad Lands, near Navajo (64990).
- THOMPSON, Mrs. OTTO, Glacier Park, Mont.: 15 plants from Montana (64186).
- THORNTON, C. W., Nome, Alaska: 99 plants from Alaska (64256).
- THUROW, F. W., Hockley, Tex.: 6 grasses from Texas (64310).
- TIDESTROM, IVAR. (See under Prof. E. M. Hall).
- TIMBERLAKE, P. H., Experiment Station, H. S. P. A., Honolulu, Hawaii: 130 named small wasps, chalcids, representing 29 species, of which 23 are represented by type material (64977).
- TOLMAN, L. M. (See under Wilson and Company).
- TOLMAN, RUEL P., U. S. National Museum: 68 specimens of water-marked paper (65012); 4 prints (65102).
- TOMPKINS-KIEL MARBLE COMPANY, New York City: 12 polished slabs of marble, 12x12x $\frac{1}{2}$ inches (64283); a slab, 11 $\frac{1}{2}$ x7 $\frac{1}{2}$ inches of "Alamora" marble (64775).
- TOPPING, D. LEROY, Department of Finance, Bureau of the Treasury, Manila, P. I.: 125 mollusks from China, 1,252 mollusks and 18 echinoderms from the Philippine Islands (64371).
- TOWLE, Captain H. LEDYARD, New York City (through the Government Loan Organization, New York City): Portrait, by the donor, of Captain Eddie Rickenbacker (65140, loan).

- TOWNSEND, ROBERT S.**, Care State Department, Washington, D. C.: Silk flag used by the Albanian gendarmerie when fighting with the Allies against the Austrians in the Koritza district, 1918 (65112).
- TOY MANUFACTURERS OF THE U. S. A., INC.**, New York City (through Mr. Fletcher D. Dodge, Secretary): Collection of war toys made in the United States during the European War, 1914-1918 (129 specimens) (64098, 64407).
- TREASURY DEPARTMENT:**
Bureau of Internal Revenue: 32 specimens of opium products; 1 specimen of hasheesh; 2 specimens of cocaine hydrochloride, 1 hypodermic syringe with case, and 1 pipe for smoking opium (64227).
Supervising Tea Examiner: 52 samples of official tea standards and 3 samples of Chinese tea (64029).
- TRELEASE, Dr. WILLIAM.** (See under James H. Ferriss).
- TREMPER, Dr. R. H.**, Ontario, Calif.: 2 albino land shells of *Epiphragmophora tudiculata* from California, the first of the kind received by the National Museum (64884).
- TROEMNER, HENRY**, Philadelphia, Pa.: 3 pharmaceutical balances with a set each of troy, avoirdupois, and metric weights (64117).
- TRYON, GEORGE**, Great Falls, Mont.: Specimen of trout, *Salmo lewisi* (64142).
- TYLER, JAMES G.**, and **WILBUR S. WRIGHT**, Greenwich, Conn. (through the Government Loan Organization, New York City): Painting by James G. Tyler entitled "Torpedoed" (65137).
- ULP, CLIFFORD**, Bevier Art Memorial Building, Rochester, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "General Allenby in Palestine" (65163).
- ULRICH, Dr. E. O.**, U. S. Geological Survey, Washington, D. C.: A Silurian trilobite from Lockport, New York (63825). (See also under J. D. Comer, and Dr. W. O. Hotchkiss).
- UNITED STATES NAVAL ACADEMY:** 2 stiple engravings, by Henry Meyer, of Commodore Stephen Decatur and Commodore Oliver H. Perry, after the original pictures by John W. Jarvis (64424).
- UNITED STATES PHARMACOPOEIAL CONVENTION, INCORPORATED** (through Dr. Lyman F. Kebler, Secretary, Bureau of Chemistry, U. S. Department of Agriculture, Washington, D. C.): Records of the Revision Committee of the U. S. Pharmacopoeia IX for the Decade 1910-1920 (65110, deposit).
- UNIVERSITETETS BOTANISKE MUSEUM** (See under Copenhagen, Denmark).
- UTAH STATE HISTORICAL SOCIETY** (through Mr. J. R. Letcher, Salt Lake City, Utah): Pair of saddle holsters owned by Colonel Albert Sidney Johnston, U. S. Army, during the expedition against the Mormons in Utah, 1857-1860; and a cartridge case of the same period (63924).
- VANDERPOEL, E. N.** (Mrs. John A.), Litchfield, Conn. (through the Government Loan Organization, New York City). Painting by the donor entitled "Ypres After the War" (65160).
- VAUGHAN, Dr. T. WAYLAND.** (See under J. A. Bullbrook, Misses Alice, Eliza, and Emily Quin, and F. L. Wilde.)
- VEIT, JOHN J.**, Washington, D. C.: Bat (64166).
- VIEHOEVER, Dr. ARNO**, U. S. Department of Agriculture, Washington, D. C.: A series of specimens showing the use of sphagnum moss for surgical dressings (65046).
- VILLENEUVE, Dr. J.**, Ramboullett, France: 20 species of European flies belonging to the family Anthomyiidae (54709, exchange)

- VIOSCA, PERCY, jr. (See under Louisiana State Museum and Southern Biological Supply Co.)
- VONSEN, M., Petaluma, Calif.: 2 mineral specimens from Riverside County, California (63948, exchange); 2 specimens of smithsonite and 2 of hydrozincite from Cerro Gordo Mine, near Keeler, California (64156, exchange); 3 specimens of minerals from Island Mount Copper mine, Trinity County, California (64436).
- WADE, DR. BRUCE, Geological Department, Johns Hopkins University, Baltimore, Md.: A collection of bryozoans from the Cretaceous of Tennessee (64696).
- WAGNER, GUS, Clements, Kans.: Cotton-mouth moccasin, *Aligatorodon piscivorus*, and a water snake, *Natrix sipedon transversa* (64134).
- WALCOTT, DR. CHARLES D., Secretary, Smithsonian Institution: Bound folder entitled "The Costumes of the Members of the University of Oxford" (64304).
(See also under Burton S. Fox.)
- WALCOTT, MRS. CHARLES D., Washington, D. C.: 146 plants from Alberta and British Columbia (64189); lady's side saddle used by the donor (64856).
- WALCOTT, MISS HELEN, Care, Dr. Charles D. Walcott, Smithsonian Institution: German military documents and pamphlets found in the attic of a chateau northeast of Verdun, France, designated by the Germans as a Red Cross station, but evidently used by them as an observation post (65027).
- WALFORD, EDWIN A., West Bar, Banbury, England: 10 invertebrate fossils from the neighborhood of Banbury, Oxfordshire, England (64146).
- WALKER, DR. BRYANT, Detroit, Mich.: Mollusk, *Cyrenoidea americana*, collected by Mr. J. Zetek at Punta Paitilla, Panama (64043); 8 mollusks, representing 4 species, cotypes of *Annicolas*, from Guatemala (64767).
- WALKER, DR. E. M., University of Toronto, Toronto, Ontario, Canada: 40 Odonata, representing 20 species, from Canada, including *Neurocordulia ramaskanensis*, *Coenagrion interrogatum* and *C. angulatum* (63931, exchange).
- WALLACE, JOHN, Hamilton, Ontario, Canada: 3 Silurian fossils from Ontario, Canada (64996, exchange).
- WALTER, MISS MARTHA, New York (through the Government Loan Organization, New York City: Portrait, by the donor, of Brigadier General Charles I. De Bevoise) (65166).
- WAR DEPARTMENT: Lithographic plan of the battlefield of Gettysburg and 3 photographs showing groups of United States Army officers of the period of the Civil War (64951).
General Staff of the United States Army:
Office of the Chief of Staff: Army, Army Corps, Division, and Special Unit Insignia, worn by the officers and enlisted men of the United States Army during the war with Germany, 1917-1918 (72 specimens) (64027).
General Staff College: Jack plane, the woodwork of which was made from the planking of the U. S. frigate *Kearsage* in 1871, and presented to Lieut. Gen. John M. Schofield, U. S. Army, in 1895 (64152).
Historical Branch: Posters and maps relating to the War with Germany, 1917-1918 (63993); 3 bronze military buttons of the early part of the nineteenth century (64116); posters issued in the United States during the War with Germany, 1917-1918 (54 specimens) (64126); 3 drawings made by students of the American Museum of Art, Beaune, France (64137); Bolshevik flag captured at Yakovlevskaya on the

WAR DEPARTMENT—Continued.

North Drina, June 26, 1919, by the First Battalion of the Third North Russian Rifle Regiment (64449); drawings and paintings made by the official artists of the American Expeditionary Forces in France during the World War, 1914-1918 (479 specimens) (64592); See also under New Zealand, Government of).

Purchase, Storage & Traffic Division: 2 periscopes used during the War with Germany (64099).

Air Service: French Spad aeroplane used on the western front during the World War, 1918 (64458); American, French, and German airplanes of the type used during the World War, 1914-1918 (65078).

Chemical Warfare Service: Projectiles offensive and defensive equipment, and miscellaneous materials of the type used in chemical warfare by the armies of the Allied and enemy countries during the World War, 1914-1918 (65025); United States, English, French, and German paraphernalia of the type used in gas warfare during the World War, 1914-1918 (10 specimens) (64052).

Engineers, Office of the Chief of: Engineer equipment and accessories of the type used by the United States Army during the World War, 1914-1918 ((65024).

Ordnance, Office of the Chief of: 3 German guns with carriages; 2 minnenwerfer, and 2 caissons, captured by American forces during the war with Germany, 1917-1918 (63817); field guns, machine guns, projectiles, and miscellaneous ordnance materials of the type used by the armies of the United States and the Allies during the World War, 1914-1918 (65021); German and

WAR DEPARTMENT—Continued.

Austrian field guns, howitzers, mortars, machine guns and miscellaneous ordnance equipment captured by American Expeditionary Forces in France during the World War, 1918 (65026); small arms of the type used by the armies of the Allies and the enemy countries during the World War, 1914-1918 (65029); marksmanship badges and infantry, cavalry and miscellaneous military equipment of the type used by officers and enlisted men of the United States Army during the War with Germany, 1917-1918 (141 specimens) (64039); German battery commander's telescope tripod, captured by American forces in the Argonne Forest, 1918 (64125); revolvers, bayonets, swords, machetes, and knives, of the type used in the United States Army (26 specimens) (64178); pack outfit for Benet Mercie machine gun, Model 1911 (24 specimens) (64179); board showing each operation in the manufacture of the 75-millimeter cartridge case of the type used during the war with Germany (64180); United States Infantry 37-millimeter machine gun, French 75-millimeter gun with drill cartridge kit, Stokes 3-inch trench mortar with tools and accessories, 6-inch trench mortar with tools and accessories, and 240-millimeter trench mortar with tools and accessories of the type used during the war with Germany (12 specimens) (64181); trench mortar dummy shells, adapters and boosters, fuse, powder bags, 155 millimeter dummy, projectile, and rough casting for 8-inch shell with riser for same of the type used during the war with Germany (15 specimens) (64182); pyrotechnic signal pieces and trench warfare ma-

WAR DEPARTMENT—Continued.

terial of the type used by the United States Army during the World War, 1914-1918 (47 specimens) (64412). Loan. 16 samples of silk cartridge cloth (65107, transfer).

Quartermaster General, Office of:

Bronze replicas of the badges awarded to the officers and men of the U. S. Army for service during the occupation of Porto Rico, 1898, and to the officers and men of the U. S. National Guard for service during the Spanish-American War and on the Mexican Border (3 specimens) (63975); foreign military uniforms and equipment of the type used in the period 1878-1909 (769 specimens) (64100); military uniforms mounted on lay figures, unmounted uniforms, insignia, flags, equipment, pictures, and miscellaneous relics, illustrating the history of the United States Army, 1776-1909 (2,128 specimens) (64127); uniforms and individual equipment of the type used by the Belgians, French, British, Italian, Japanese, German, Austrian, and Turkish Armies during the World War, 1914-1918 (64931); foreign decorations and medals of the type awarded for services during the World War, 1914-1918 (160 specimens) (64933); German military equipment captured by American Expeditionary Forces in France during the World War, 1918 (65022); military equipment of the type used by the Allied Armies during the World War, 1914-1918 (65023):

Surgeon General, Office of: A series of specimens and photographs illustrating occupational and physio-therapy as carried on in the military hospitals under the reconstruction aid service (64133).

WARDER, Mrs. B. H., Washington, D. C.: "The Greek Slave" by Hiram Powers, reduced replica in white marble (with pedestal) (64780); a group in white marble by William H. Rinehart, Rome, 1869, entitled "The Sleeping Children" (64853); 2 Sèvres vases (with 2 pedestals signed Abel Schilt de Sèvres (64875, loan).

WARD'S NATURAL SCIENCE ESTABLISHMENT, Rochester, N. Y.: 27 fossils, including 14 types (64069); 2 heads of the trilobite, *Metopolichas* (64200); a slice weighing 2,003 grams of the Washington County, Kansas, meteoric stone, and a piece weighing 1,397 grams of the Kesen, Japan, stone (64713); 40 Paleozoic fossils including 2 figured types (64846). Exchange.

WARNER, Mrs. MURRAY, San Francisco Calif.: Shinto charms collected by donor while in Japan (241 specimens) (64235).

WARREN COMPANY, The S. D., Boston, Mass.: Warren paper samples in bound form, showing the results obtained by printing on the various papers (64025).

WARREN, E. R., Colorado Springs, Col.: 15 photographs of plants (64288).

WASHINGTON, Dr. HENRY S., Geophysical Laboratory, Carnegie Institution of Washington, Washington, D. C.: A specimen of the mineral larderellite from Larderello, Tuscany (64420); a 27-gram fragment of the Jerome, Kansas, meteoric stone, analyzed and described by the donor, and a specimen of sylvite from Abyssinia (64499): 3 specimens of manganese ore from Brazil and 1 of laurionite from Laurion, Greece (64607); a specimen of the mineral villaumite from Los Islands, West Africa (64889).

WASON, Mrs. CHARLES WILLIAM, Cleveland, Ohio: China soup plate used at the White House during the administration of President Rutherford B. Hayes, 1877-1881 (64051).

- WATKINS, J. T., Alexandria, Va.: 13 economic plant products from Jamaica; 4 samples of feather work from Mexico, and a pearl shell from southern California (65041).
- WATSON, Prof. G. N., University of Kansas, Lawrence, Kans.: A plant (64824).
- WATSON, Dr. THOMAS L., Charlottesville, Va.: 2 photographs showing the mining of manganese dioxide (64765).
- WATSON, Mrs. W. A., Washington, D. C.: Miniature portrait on ivory and lady's wearing apparel of the latter part of the 18th century (13 specimens) (64751, loan).
- WAUGH, FREDERICK J., Kent, Conn. (through the Government Loan Organization, New York City): Painting by the donor entitled "The Great Mine Barrage Across the North Sea" (65170).
- WAY, Dr. STUART C., City Hospital, Louisville, Ky.: Lot of shell fragments, drilled and partially shaped for beads, found in an earthen pot near Lucas, Kentucky (64750, exchange).
- WEATHERBY, C. A., East Hartford, Conn.: 73 plants (64681).
- WEATHERLY, B. I., Pine Hill, Ala.: A septarian nodule (64265).
- WEAVER, J. W., New York City (through the Government Loan Organization, New York City): Painting by the donor entitled "Naval Guns in Action" (65174).
- WEBB, WALTER F., Rochester, N. Y.: 4 land shells, *Cochlostyla metaformis metaformis*, from Luzon, Philippine Islands (64355); 9 Philippine land shells, representing 5 species, including 1 type (64547); 26 land mollusks from the island of Negros, P. I., specimens representing 5 species (64677).
- WEBER, C. M., Balabac, Palawan, P. I.: 1033 land and marine mollusks, 16 species, including the type of 1 new species (63867); 86 Philippine Island land shells, representing 4 species, including the types of 3 new subspecies (64663).
- WEED, ALFRED C., North Rose, N. Y.: About 150 fresh water mollusks representing 4 species from muck collected at North Rose (64619).
- WEED, Mrs. HELENA HILL, Norwalk, Conn.: An Acoma vase (64594).
- WEILAND, JAMES, Brooklyn, N. Y. (through the Government Loan Organization, New York City): Painting by the donor entitled "Signing of the Armistice" (65139).
- WEISS, HARRY B., New Brunswick, N. J.: 7 vials of immature stages of beetles in alcohol, namely, *Zengophora*, *Catorama nigrifulum*, *Bradyeis brevicollis*, *Sulcacis lengi*, *Mordella marginata*, *Eustrophus bicolor*, and *Orchesia castanea* (63890); 8 vials of miscellaneous insects (64710).
- WELLS, Prof. B. W., University of Arkansas, Fayetteville, Ark.: 85 plants from Arkansas (63945).
- WERTH, Mrs. MARY MAURY, Richmond, Va.: 2 photographs of Matthew F. Maury, scientist and naval officer, taken by Anderson, Richmond, Virginia, in 1868 (64571).
- WESTLAKE, Mr. (No address given): An ant eater (64926).
- WESTON, FRANCIS M., jr., U. S. Naval Air Station, Pensacola, Fla.: 2 eggs of a brown thrasher, *Toxostoma rufum*, and skull of a domestic goose, from Florida (64096).
- WHARRAN, S. V., Austinburg, Ohio: 10 mollusks, *Alectrion obsoleta*, from the brackish water of the Halifax River, Volusia County, Florida (64080).
- WHEELER, H. E., Conway, Ark.: 2 mollusks, 2 species, from Egypt (64559).
- WHEELER, Dr. W. M., Bussey Institution, Forest Hill, Boston, Mass.: 21 specimens of named Mutillidae, representing 12 species (64000).
- WHERRY, Dr. E. T., U. S. Department of Agriculture, Washington, D. C.: About 50 insects collected on Mount Washington, N. H., June 24, 1919 (63824); 4 ferns from Mary-

WHERRY, Dr. E. T.—Continued.

land (64369); 3 plants from Maryland (64387); 68 specimens of plants (64732).

(See also under Dr. H. D. Gibbs, and O. Ivan Lee.)

WHITE, Mrs. JOHN J., Washington, D. C.: Mounted lion head in a glass case, and a mounted white rhino head (64432); mounted Bongo head (64868). Deposit.

WHITE, Captain S. A., Fulham, South Australia, and Dr. R. W. Shufeldt, U. S. Army (retired), Washington, D. C.: Skeleton of wedge-tailed eagle, *Uroaetus audax*, from Australia (64862).

WHITING, J. D., New Haven, Conn. (through the Government Loan Organization, New York City): Painting by the donor entitled "Army Transports" (65173).

WHITNEY, F. R., Tacoma, Wash. (through Dr. J. Walter Fewkes): Experiments in chipping (agate and glass) made by the donor (6 speci-mens) (64774).

WHITNEY, L. A. (See under California, State of, Department of Agriculture).

WICKHAM, H. F., University of Iowa, Iowa City, Iowa: A vial of rare beetle larvae and pupae (64737).

WIENER, Captain CLARENCE L., New York City: 14 Confederate and other notes, a plaster disk, and 195 ancient coins (64480).

WILCOX, Brigadier General, T. E., U. S. Army (retired), Washington, D. C.: 3 specimens of plants, *Achlys triphylla* (64974).

WILDE, F. L. (through Dr. C. Wythe Cooke, U. S. Geological Survey, Washington, D. C.): 3 sea urchins and a large *Pecten* collected by the donor in Colombia, South America (63939); (through Dr. T. Wayland Vaughan): 9 fossils from east of Cartagena, Colombia (64021).

WILLIAMS, Dr. DUDLEY A., Providence, R. I. (through Dr. W. A. Dewey, Ann Arbor, Mich.): 10 volumes of Allen's Encyclopedia of Homeopathic Materia Medica, with Symptom Register, and a copy of Hahnemann's Lesser Writings (63831).

WILLIAMSON, E. B., Bluffton, Ind.: 26 Odonata (7 species of *Neonerna* and 4 species of *Heteragrion*) from Central and South America (63921); 6 Odonata from Indiana, Colombia, and Guatemala, and 3 envelopes of food of *Erythenais simplicicollis* (64269).

WILSON, President Woodrow, White House, Washington, D. C.: Illuminated address from the Lord Mayors and other officials of various cities and towns of Great Britain and Ireland to the people of the United States of America expressing regret at the departure of the American Military and Naval Forces after the conclusion of the World War, 1919 (64551, transfer). (See also under Branko Dechkovitch).

WILSON, Mrs. WOODROW, White House, Washington, D. C. (through Mrs. Julian-James): A black velvet evening gown worn by the donor (64961).

WILSON AND COMPANY, Chicago, Ill. (through Mr. L. M. Tolman, Chief Chemist): 31 samples of edible and inedible animal oils and fats, and 3 charts showing manner of cutting up carcasses of beef, pork and mutton (65045).

WINCHESTER, DEAN E., Washington, D. C.: A specimen of fossil wood from the Eocene of Jamaica (64976).

WOLCOTT, G. N., Bureau of Entomology, U. S. Department of Agriculture, Washington, D. C.: 47 land shells, 4 species, collected by the donor at Barmereld, New York (64242).

WOLFE, Prof. J. E., Harvard University, Cambridge, Mass.: 150 grams of the Estherville meteorite (65085, exchange).

- WOOD, N. R., U. S. National Museum: 23 Odonata collected by the donor during February and March, 1917, in Auburndale, Florida, and 25 lizards from Florida (63922, 64803); yellow rail, *Coturnicops noveboracensis*, from Washington, D. C. (63942).
- WOOD, W. A., Baltimore, Md.: A piece of Samoan tapa cloth (64773).
- WOODLAND, DANIEL S., U. S. National Museum: 28 killifishes, *Fundulus heteroclitus*; 1 each of *Fundulus majalis*; sheephead minnow, *Cyprinodon variegatus*; and 2 silver-sides, *Menidia gracilis beryllina*, from Eastern Branch, Rappahannock River, Lancaster County, Virginia (64114).
- WOODS, W. H., Fort Calhoun, Neb.: White metal token commemorating the centennial anniversary of the founding of Fort Atkinson, Nebraska, 1919 (64886).
- WOODSIDE, T. W., Orlando, Fla.: Skin and skull of a yellow-backed female duyker, from Angola, Portuguese West Africa (64573).
- WOODWARD, Miss MARGUERITE, U. S. National Museum: Mollusk, *Polygyra albolabris*, from Scott's Run, Virginia (63851).
- WOODWARD, Prof. WILLIAM, The Tulane University of Louisiana, New Orleans, La. (through the Government Loan Organization, New York City): Portrait of Major (now Lt. Col.) James E. Edmunds, by Prof. Woodward (65122, loan); portrait of Col. Allison Owen, 141st Field Artillery, by Prof. Woodward (65180).
- WOOLLEY, CLAUDE L., Baltimore, Md.: Aluminum sundial of horizontal type, and adjustable for accurate time for the latitude of London, England N. 51° 27' (64453).
- WORCESTER SALT COMPANY, New York City: A complete working model illustrating the mining, treatment and preparation of table salt (65043).
- WORCH, HUGO, Washington, D. C.: An upright piano built by John Isaac Hawkins, Philadelphia, 1801 (64802); a double bank harpsichord made by Burkhard Schudi, London, about 1747, and 2 pianos made by C. F. L. Albrecht, Philadelphia, about 1827, and Babcock, Boston, about 1829 (65118).
- WRIGHT, Mrs. S. M., Philadelphia, Pa.: 8 colored prints published by H. Heideloff, showing ladies' costumes, 1794-1800 (64482).
- WRIGHT, WILBUR S. (See under James G. Tyler.)
- WYAND, W. H., Hagerstown, Md.: Specimen of manganese ore from Shenandoah County, Virginia (63873).
- WYATT, A. K. and EMIL BEER, Chicago, Ill.: 48 rare North American Lepidoptera including 2 coltypes and several species not hitherto represented in the Museum collections (64439).
- WYETH, JOHN and BROTHER, Incorporated, Philadelphia, Pa.: 9 cinchona products (64638).
- YOUNG, JOHN P., Washington, D. C.: Fern, *Asplenium chenoides*, from Virginia; 2 ferns from Colorado; 11 ferns and 188 plants from Florida (64353; 64409; 64850; 64864).
- ZEHNSTNER, Dr. LEO, Bahia, Brazil: 10 plants from Brazil (64833).
- ZELUFF, U. C., Tampa, Fla.: Parasitic isopod, *Livoneca* species, from the gills of a sheep's head fish (64639).
- ZETEK, JAMES, Ancon, Canal Zone: Fly, *Xanthozona melanopyga* (64883).
- ZIEGLER, Mrs. MERTIE M., Washington, D. C.: Skin and skull of a squirrel from Luthersburg, Pennsylvania (64211).
- ZOOLOGICAL MUSEUM (See under Copenhagen, Denmark.)



LIST OF PAPERS BY MEMBERS OF THE MUSEUM STAFF
AND OTHERS, BASED DIRECTLY OR INDIRECTLY ON
MATERIAL IN THE NATIONAL COLLECTIONS, PUB-
LISHED BY THE MUSEUM AND ELSEWHERE DURING
THE FISCAL YEAR 1919-1920.

- ALDRICH, J. M. Description of a new species of *Hylemyia*.
Annals Ent. Soc. America, vol. 12, no. 4, Dec., 1919, pp. 380, 381.
- The European fruit fly in North America.
Journ. Agric. Research, vol. 18, no. 9, Feb. 2, 1920, pp. 451-473, pl. 57.
- ALEXANDER, CHARLES P. Records and descriptions of neotropical crane-flies.
Journ. New York Ent. Soc., vol. 27, nos. 2-3, June-Sept., 1919, pp. 132-154, pl. 17.
- ALLEN, GLOVER M. Dogs of the American aborigines.
Bull. Mus. Comp. Zool., vol. 63, no. 9, Mar., 1920, pp. 431-517, pls. 1-12.
- ANTHONY, H. E. Mammals collected in eastern Cuba in 1917.
Bull. Amer. Mus. Nat. Hist., vol. 41, Dec., 1919, pp. 625-645, pls. 35-37.
- New rodents and new bats from neotropical regions.
Journ. Mamm., vol. 1, no. 2, Feb., 1920, pp. 81-86, text figs. 1-4.
- BAILEY, VERNON. A new subspecies of beaver from North Dakota.
Journ. Mamm., vol. 1, no. 1, Nov., 1919, pp. 31, 32.
- Identity of the bean mouse of Lewis and Clark.
Journ. Mamm., vol. 1, no. 2, Feb., 1920, pp. 70-72.
- Old and new horns of the Prong-Horned Antelope.
Journ. Mamm., vol. 1, no. 3, May, 1920, pp. 128, 129, pl. 8.
- BAKER, A. C., and M. L. MOLES. A new species of Aleyrodidae found on *Azellea*.
Proc. Ent. Soc. Washington, vol. 22, no. 5, June 14, 1920, pp. 81-85, pl. 5.
- BANKS, OUTRAM, and THOMAS EDWARD PENARD. Two new American hawks.
Proc. New England Zool. Club, vol. 7, Feb. 19, 1920, pp. 45-47.
- BANGS, OUTRAM, and THOMAS ED-SNYDER. A revision of the nearctic Termites with notes on biology and geographic distribution.
Bull. U. S. Nat. Mus., no. 108, Apr. 13, 1920, pp. 1-228, pls. 1-35.
- BARBER, H. S. A new tropical weevil from Florida and Cuba.
Proc. Ent. Soc. Washington, vol. 22, no. 6, June 16, 1920, pp. 150-152, pl. 8.
- BARBOUR, THOMAS. Herpetological notes.
Proc. New Eng. Zool. Club, vol. 7, July 26, 1919, pp. 7-13.
- A new Rock Iguana from Porto Rico.
Proc. Biol. Soc. Washington, vol. 32, Sept. 30, 1919, pp. 145-147, pl. 1.
- and EMMETT REID DUNN. Two new Chinese *Japaluras*.
Proc. New Eng. Zool. Club, vol. 7, Oct. 10, 1919, pp. 15-19.
- BARNES, WILLIAM, and AUGUST BUSCK. Notes and new species.
Contributions to the Nat. Hist. of the Lepidoptera of North America, vol. 4, no. 3, Mar. 8, 1920, pp. 211-278, pls. 26-40.

BARTSCH, PAUL. The bird rookeries of the Tortugas.

Rep. Smithsonian Inst., 1917, (1919), pp. 469-500; pls. 1-38.

——— Critical remarks on Philippine island land shells.

Proc. Biol. Soc. Washington, vol. 32, Sept. 30, 1919, pp. 177-184.

——— The Philippine Island land shells of the genus *Platyrhaphe*.

Journ. Washington Acad. Sci., vol. 9, no. 24, Dec. 19, 1919, pp. 649-655.

——— Two new land shells from California.

Proc. Biol. Soc. Washington, vol. 32, Dec. 31, 1919, pp. 247, 248.

——— Cerion Breeding experiments. *Carnegie Inst. of Washington, Year Book*, No. 18, 1919 (1920) pp. 3-55, pls. 1-59.

——— Birds observed on the Florida Keys and the southern end of the mainland of Florida in 1919.

Carnegie Inst. of Washington, Year Book, No. 18, 1919 (1920) pp. 205-210.

——— Explorations and Cerion studies on the Florida Keys.

Smith Misc. Colls., vol. 72, no. 1, May 8, 1920, pp. 41-47, text figs. 42-46.

——— Abstract of address: "Our poison-gas detector and how it was discovered."

Journ. Washington Acad. Sci., vol. 10, no. 10, May 19, 1920, p. 309.

BEAN, BARTON A., and ALFRED C. WEED. Notes on a collection of fishes from Vancouver Island; B. C. *Trans. Royal Soc. Canada*, ser. 3, vol. 13, 1920, pp. 69-83, pls. 1-4.

BELL, MARY M. (See under Maynard M. Metcalf.)

BENT, ARTHUR CLEVELAND. Life histories of North American diving birds, order *Pygopodes*.

Bull. U. S. Nat. Mus., No. 107, Aug. 1, 1919, pp. i-xiii, 1-245, pls. 1-55.

BLAKE, S. F. The genus *Homalium* in America.

Contr. U. S. Nat. Herb., vol. 20, pt. 7, Sept. 9, 1919, pp. 221-235.

——— New South American spermatophytes collected by H. M. Curran.

Contr. U. S. Nat. Herb., vol. 20, pt. 7, Sept. 9, 1919, pp. 237-245.

——— A new *Salvia* from Guatemala.

Proc. Biol. Soc. Washington, vol. 32, Sept. 30, 1919, pp. 187, 188.

——— New plants from Sinaloa.

Proc. Biol. Soc. Washington, vol. 32, Sept. 30, 1919, pp. 189-193.

——— The anay, a new edible-fruited relative of the avocado.*

Journ. Washington Acad. Sci., vol. 9, no. 16, Oct. 4, 1919, pp. 457-462, text fig. 1.

——— A preliminary revision of the North American and West Indian avocados (*Persea* spp.).

Journ. Washington Acad. Sci., vol. 10, no. 1, Jan. 4, 1920, pp. 9-21, text figs. 1, 2.

——— Revision of the true mahoganies (*Swietenia*).

Journ. Washington Acad. Sci., vol. 10, no. 10, May 19, 1920, pp. 286-297, text figs. 1, 2.

BLANCHARD, FRANK N. A black *Pituophis*.

Copeia, no. 81, Apr. 15, 1920, pp. 30-33.

BONNE-WEPSTER, J. and C. BONNE. Diagnoses of new mosquitoes from Surinam, with a note on synonymy.

Insector. Inscitiae Menstruus, vol. 7, nos. 10-12, Jan. 7, 1920, pp. 165-180.

BORRADAILE, L. A. On a new commensal prawn.

Ann. Mag. Nat. Hist., ser. 9, vol. 5, Jan., 1920, pp. 132, 133.

BUSCK, AUGUST. Descriptions of new Central American Microlepidoptera.

Insecutor Inscitiae Menstruus, vol. 8, nos. 4-6, Mar. 18, 1920, pp. 83-95.

—— (See also under William Barnes.)

CAUDELL, A. N. Zoraptera not an apterous order.

Proc. Ent. Soc. Washington, vol. 22, no. 5, June 14, 1920, pp. 84-97, pl. 6.

CHAPIN, EDWARD A. New American Cleridae with note on the synonymy of *Micropterus* Chev.

Proc. Ent. Soc. Washington, vol. 22, no. 3, Mar. 22, 1920, pp. 50-54.

CHAPMAN, FRANK M. Descriptions of proposed new birds from Peru, Bolivia, Argentina, and Chile.

Bull. Amer. Mus. Nat. Hist., vol. 41, art. 5, Sept. 1, 1919, pp. 323-333.

—— Descriptions of proposed new birds from Peru, Bolivia, Brazil, and Colombia.

Proc. Biol. Soc. Washington, vol. 32, Dec. 31, 1919, pp. 253-267.

—— Description of a proposed new race of the killdeer from the coast of Peru.

Auk, vol. 37, no. 1, Jan., 1920, pp. 105-108.

CHASE, AGNES. The North American species of *Brachiaria*.

Contr. U. S. Nat. Herb., vol. 22, pt. 1, Mar. 29, 1920, pp. 32-43, text figs. 1-6.

CHASE, AGNES. The North American species of *Cenchrus*.

Contr. U. S. Nat. Herb., vol. 22, pt. 1, Mar. 29, 1920, pp. 45-77, text figs. 7-20.

CLARK, AUSTIN H. The Echinoderms of the Canadian Arctic Expedition, 1913-18.

Rep. Canadian Arctic Expedition 1913-18, vol. 8, Mollusks, Echinoderms, Coelenterates, etc., part C, Echinoderms, pp. 1 C-11 C, April 6, 1920.

—— Additional data for the Report on Echinoderms of the Canadian Arctic Expedition, based upon specimens from the "Neptune" and other Eastern Arctic Expeditions.

Rep. Canadian Arctic Expedition 1913-18, vol. 8, Mollusks, Echinoderms, Coelenterates, etc., part C, Echinoderms, pp. 11 C-13 C, April 6, 1920.

COCKERELL, T. D. A. The Social bees of the Philippine Islands.

Philippine Journ. Sci., vol. 14, no. 1, Jan., 1919, pp. 77-81.

—— The Philippine bees of the family *Nomadidae*.

Philippine Journ. Sci., vol. 14, no. 1, Jan., 1919, pp. 83-86.

—— The *Prosopidae*, or obtuse-tongued bees, of the Philippine Islands.

Philippine Journ. Sci., vol. 14, no. 2, Feb., 1919, pp. 191-194.

—— The Philippine bees of the families *Anthophoridae* and *Melectidae*.

Philippine Journ. Sci., vol. 14, no. 2, Feb., 1919, pp. 195-199.

—— Philippine bees of the genus *Nomia*.

Philippine Journ. Sci., vol. 15, no. 1, July, 1919, pp. 1-8.

—— The metallic-colored Halictine bees of the Philippine Islands.

Philippine Journ. Sci., vol. 15, no. 1, July, 1919, pp. 9-13.

COCKERELL, T. D. A. The black Halletine bees of the Philippine Islands.

Philippine Journ. Sci.,
vol. 15, no. 3, Sept.,
1919, pp. 269-281.

—— A parasite of Dermestid beetles in entomological collections.

Can. Ent., vol. 52, no. 2,
Feb., 1920, p. 34.

—— A new leaf-cutting bee from the Hawaiian Islands.

Can. Ent., vol. 52, no. 5,
May 25, 1920, pp. 119,
120.

—— Eocene insects from the Rocky Mountains.

Proc. U. S. Nat. Mus.,
vol. 57, no. 2313, June
15, 1920, pp. 233-260,
pls. 32-36.

COKER, ROBERT E. Habits and economic relations of the guano birds of Peru.

Proc. U. S. Nat. Mus.,
vol. 56, no. 2298, Sept.
11, 1919, pp. 449-511,
pls. 53-69.

COLE, FRANK R. A new genus in the Dipterous family Cyrtidae from South America.

Ent. News, vol. 30, no.
10, Dec., 1919, pp.
271-274, pl. 11.

CORY, CHARLES B. A review of Reichenbach's genera Siptornis and Cranioleuca, with descriptions of new allied genera and a subgenus.

Proc. Biol. Soc. Washing-
ton, vol. 32, Sept. 30,
1919, pp. 149-159.

—— Descriptions of three new South American birds.

Auk, vol. 36, no. 4, Oct.,
1919, pp. 540, 541.

—— The relationships and geographical distribution of the species and races belonging to the genus *Rhynchocyclus*.

Proc. Biol. Soc. Washing-
ton, vol. 32, Dec. 31,
1919, pp. 217-223.

—— Descriptions of a new species and subspecies of Tyrannidae.

Auk, vol. 37, no. 1, Jan.,
1920, pp. 108, 109.

COVILLE, FREDERICK V. The threatened extinction of the box huckleberry, *Gaylussacia brachycera*.

Science, n. s., vol. 50, no.
1280, July 11, 1919,
pp. 30-34.

CRAIGHEAD, F. C. Biology of some Coleoptera of the families Colydiidae and Bothrideridae.

Proc. Ent. Soc. Washing-
ton, vol. 22, no. 1, Jan.
23, 1920, pp. 1-13, pls.
1, 2, 1 text fig.

CUSHMAN, JOSEPH AUGUSTINE. A new foraminifer commensal on Cyclammina.

Proc. U. S. Nat. Mus.,
vol. 56, no. 2290, July
31, 1919, pp. 101, 102,
pl. 25.

—— Observation on living specimens of *Iridia diaphana*, a species of foraminifera.

Proc. U. S. Nat. Mus.,
vol. 57, no. 2308, June
16, 1920, pp. 153-158,
pls. 19-21.

CUSHMAN, R. A. Notes on certain genera of Ichneumon-flies, with descriptions of a new genus and four new species.

Proc. U. S. Nat. Mus.,
vol. 56, no. 2296, Aug.
27, 1919, pp. 373-382.

—— Viereck's family Labenidae with the description of a new species of *Apechoneura* (Hym., Ichneumonidae).

Proc. Ent. Soc. Washing-
ton, vol. 22, no. 4, Apr.
19, 1920, pp. 76-80, 1
text fig.

—— and S. A. ROHWER. Holarctic tribes of the Ichneumon-flies of the subfamily Ichneumoninae (Pimplinae).

Proc. U. S. Nat. Mus.,
vol. 57, no. 2315, June
18, 1920, pp. 379-396.

—— and S. A. ROHWER. The North American Ichneumon-flies of the tribe Accenitini.

Proc. U. S. Nat. Mus.,
vol. 57, no. 2320, June
21, 1920, pp. 503-523.

- DALL, WILLIAM HEALEY. A new form of Ampullaria.
Nautilus, vol. 33, no. 1, July 1, 1919, pp. 10, 11.
- Note on the name Duplicaria.
Nautilus, vol. 33, no. 1, July, 1919, p. 32.
- Descriptions of new species of mollusks of the family Turritidae from the west coast of America and adjacent regions.
Proc. U. S. Nat. Mus., vol. 56, no. 2288, Aug. 8, 1919, pp. 1-86, pls. 1-24.
- Descriptions of new species of mollusca from the North Pacific Ocean in the collection of the United States National Museum.
Proc. U. S. Nat. Mus., vol. 56, no. 2295, Aug. 30, 1919, pp. 293-371.
- The mollusca of the Arctic coast of America collected by the Canadian Arctic Expedition west from Bathurst Inlet with an appended report on a collection of Pleistocene fossil mollusca.
Rept. Canadian Arctic Expedition, 1913-18, vol. 8, Mollusks, Echinoderms, Coelenterates, etc., pt. A, Mollusks, Recent and Pleistocene, Sept. 24, 1919, pp. 1A-30A, pls. 1-3.
- New shells from the northwest coast.
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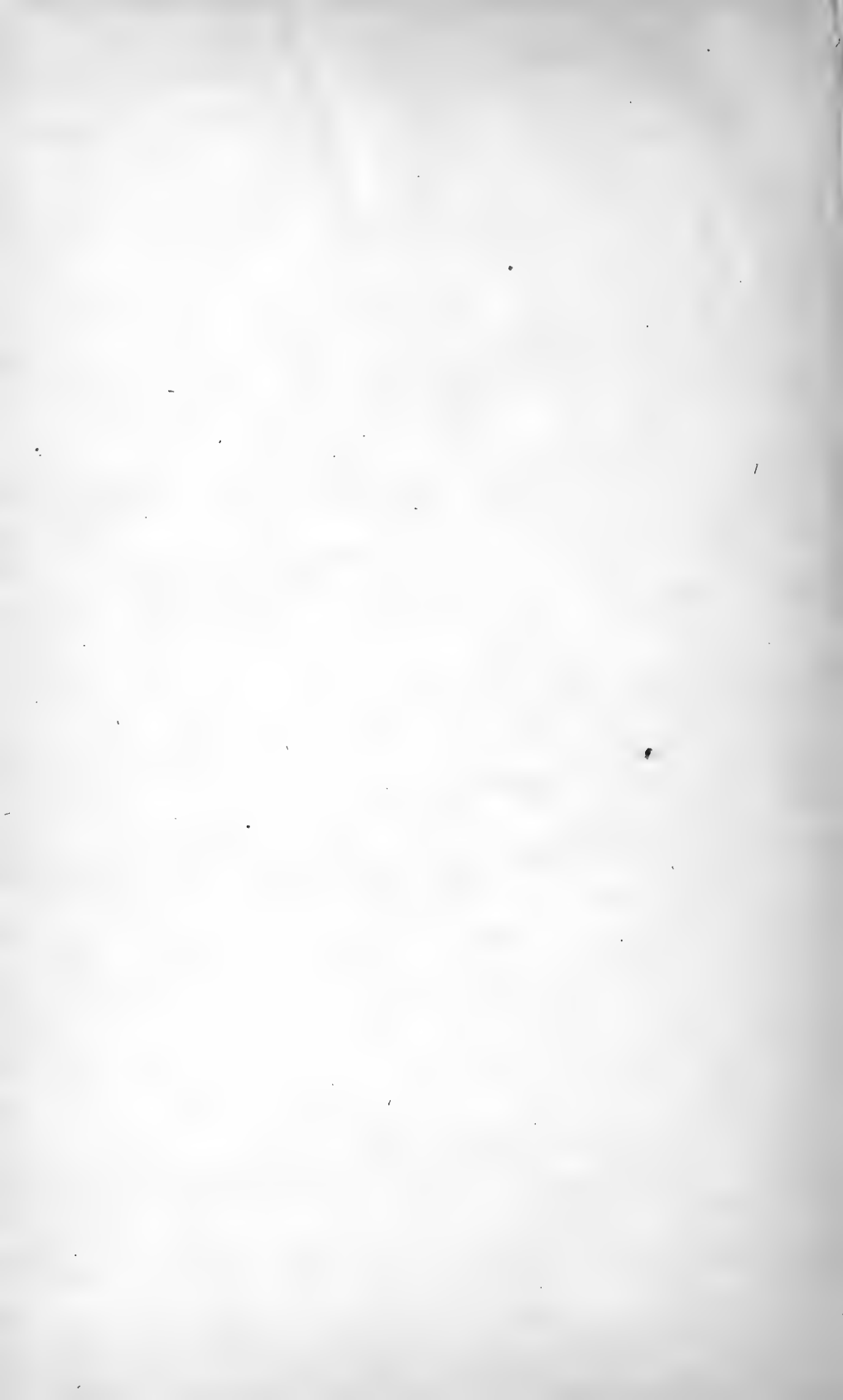
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